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PLANNING THE MEDICAL WORKFORCE

MEDICAL WORKFORCE STANDING ADVISORY COMMITTEE: THIRD REPORT

DECEMBER 1997

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PREFACE

The Rt Hon Frank Dobson MP
Secretary of State for Health
Richmond House
79 Whitehall
London
SW1A 2NS

Dear Secretary of State

MEDICAL WORKFORCE STANDING ADVISORY COMMITTEE THIRD REPORT

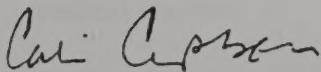
On behalf of the Committee, I am pleased to submit to you our Third Report on planning the medical workforce.

The Committee has continued, over the past two years, to consider likely health patterns, the demand for healthcare in the future, and the extent to which the expected growth in demand might be met by doctors. We formed our views by taking evidence from a wide range of interested parties, by analysis of available data and by considering research studies. We have consulted both in formal sessions and informally, with many of those people and organisations who are, directly or indirectly, responsible for the delivery of healthcare in the United Kingdom.

Most importantly, we wish to draw your attention to our conclusions that we need a range of measures to address the current significant imbalance between demand for doctors and the domestic supply. We believe that this gap will become increasingly severe unless measures are taken now to address the problem. These measures must enable the country to respond to short and medium-term changes as well as long-term needs, although we recognise that this is difficult given the long lead-times in training doctors. We consider that all the main parties will need to work together to manage the key issues influencing supply and demand. Our recommendations include some steps to improve the retention of doctors; but it seems virtually certain that these steps can only alleviate, not resolve, the growing gap between home supply and demand. Our conclusion that a substantial increase in medical school intake is needed, rests on the principle that the share of the medical workforce taken up by UK-qualified doctors should not be allowed to fall further.

I would like to thank the Members of the Committee, all of whom have contributed their knowledge, expertise and time towards the production of this Report. I know that I speak for all members of the Committee in recording our thanks to our Secretariat and the analytical team who supported them.

Yours sincerely



SIR COLIN CAMPBELL

INTRODUCTION TO THE STUDY OF POLYMER PHYSICS

This book is intended to introduce the reader to the basic concepts of polymer physics. It is designed to provide a comprehensive overview of the field, from the fundamental principles of polymer structure to the applications of polymer science in various industries. The book is organized into several chapters, each focusing on a specific aspect of polymer physics, such as the properties of polymers, their synthesis, and their applications in various fields. The book is intended for students, researchers, and professionals in the field of polymer science.

The book begins with an introduction to the basic concepts of polymer science, including the definition of a polymer, its structure, and its properties. It then moves on to discuss the various types of polymers, such as linear polymers, branched polymers, and cross-linked polymers. The book also covers the synthesis of polymers, including both chemical and physical methods. It then explores the properties of polymers, such as their mechanical properties, thermal stability, and electrical conductivity. The book also discusses the applications of polymers in various industries, such as the automotive industry, the pharmaceutical industry, and the food industry. The book concludes with a summary of the key concepts of polymer science and an overview of future research directions.

The book is intended for students, researchers, and professionals in the field of polymer science. It is designed to provide a comprehensive overview of the field, from the fundamental principles of polymer structure to the applications of polymer science in various industries. The book is organized into several chapters, each focusing on a specific aspect of polymer physics, such as the properties of polymers, their synthesis, and their applications in various fields. The book is intended for students, researchers, and professionals in the field of polymer science.

EXECUTIVE SUMMARY AND RECOMMENDATIONS

INTRODUCTION

1. This is the Third Report of the Medical Workforce Standing Advisory Committee (MWSAC) on the long-term demand for doctors in the United Kingdom and the measures needed to meet that demand.
2. Table 1 shows trends in doctor numbers in the NHS during the past 20 years.

Table 1: Trends in doctor numbers in the UK

	1976	1986	1996	Growth rate pa 1976-96
Total number of doctors in NHS	71,220	85,160	102,610	1.8 %

3. Our previous Reports considered the likely future growth in doctor numbers and recommended moderate increases in medical student intake. These increases are being achieved within existing medical schools.

APPROACH

4. Our overall methodology can be summarised as follows. We considered:
 - a. likely health patterns and the demand for healthcare in the future; and
 - b. the extent to which the expected growth in these might be met by doctors, as opposed to other healthcare staff;

and formed our views by taking evidence from a wide range of interested parties, by analysis of available data, by considering research studies and through informal consultation.

5. In other words, we assessed the likely future demand for doctors, taking account of possible changes in working patterns. We then considered how the required increases in numbers of doctors might be achieved, in terms of the balance between UK-qualified doctors and those who qualified in other EEA countries or overseas. Within the former group, we also assessed whether additional doctors might be secured via better retention of the existing pool of qualified doctors, compared with increasing the numbers entering undergraduate medical courses.

6. Considerable change in NHS organisation and healthcare delivery has occurred during the past decade, and is likely to continue in the future. There is, inevitably, uncertainty over a long planning horizon, and we have taken account of this in coming to our conclusions.

Our recommendations, including our judgement of the appropriate annual intake to medical schools, were influenced by views on the future demand for doctors, on wastage and retirement from the medical profession, and on the relative shares of doctors who qualified in the UK and outside it. These views necessarily encompass a wide range of possibilities and rest on a number of assumptions. While we regard our assumptions as sensible in the present context, we realise that it is important to keep the interactions between the policy environment and the factors which influence the supply of, and demand for doctors under review, especially as the timing of this Report has not permitted us to take full account of the Government's current initiatives in relation to the NHS, the nation's health, etc.

7. We also gave careful consideration to the risks associated with under- and over-supply of doctors. Under current circumstances, training too many doctors is highly unlikely. An increase of 1,000 in the annual medical student intake would not produce a domestic over-supply by the year 2020 under any realistic scenario. Training too few doctors, however, might well have implications for both healthcare and resources.

FUTURE DEMAND FOR DOCTORS

8. Our assessment of the relevant factors, together with the evidence we have received from other bodies, has led us to conclude that the future demand for doctors might grow at between 1.4% and 2% per annum, with a central estimate of 1.7% per annum, ie fairly similar to the trend during the last 20 years. This projected rate of increase is higher than in our previous two Reports, but represents the long-run average growth in the number of doctors; and reflects expected growth in levels of healthcare, recent changes in medical staffing policies and other influences on demand, eg changes in doctors' working hours. Of course, we recognise that there are considerable uncertainties over the way healthcare, and hence the demand for doctors, will develop.

9. In formulating our overall assumptions about the future demand for doctors, we considered possible changes in skill mix and the productivity of the medical workforce. In this regard, we believe the Government should continue to give careful attention to the most effective use of the medical workforce in the future.

MEETING DEMAND (ie FUTURE SUPPLY)

10. The current medical workforce is made up of a combination of UK-qualified doctors and doctors from other EEA countries and overseas. About 76% of doctors in the NHS are from the UK; and this "home share" has decreased in recent years. Our analysis suggests that the gap between demand and home supply will grow unless measures are taken to address the problem.

11. We have considered various ways of increasing the supply of doctors to meet the expected future growth in demand:

- further overseas recruitment;
- improved retention of UK-qualified doctors; and

- higher levels of intake to undergraduate medical courses, together with minimised levels of wastage from such courses.

12. Greater retention of doctors will improve the situation in the short and medium term. This means there needs to be a more flexible approach to the work and training of doctors, especially in view of the growing numbers of women in the medical profession. However, it seems almost certain that short and medium-term measures can only alleviate, not resolve, the gap between demand and home supply.

13. We made use of research on the length of the working lives of health service professionals to estimate annual wastage figures for doctors. The "wastage rate" (currently just over 3.5% per annum) for UK doctors is a composite of death, retirement and non-participation (due, for example, to working overseas, a career break or a career move). For our analysis, we assumed three variants for the future: 3.1%, 3.3% and 3.5% wastage. These percentages are challenging and assume improved retention arising both from recent policy initiatives and from recommendations in this Report.

14. We favour *self-reliance* as a long-term goal, that is relying largely upon UK doctors although not aiming for a workforce comprised entirely of UK doctors. We believe, therefore, that the home share should be maintained at least at its present level and we strongly re-affirm the need to move towards greater reliance on UK doctors. Given the extent of the imbalances between demand and home supply, this means a substantial increase in medical school intake, as illustrated in Table 2. Indeed some scenarios for future wastage levels and demand growth would require very large increases to medical school intake to maintain the home share at 76%. We regard our recommendation of an increase in intake of about 1,000 per year as a balanced view. The majority of the additional students would probably follow the normal pattern of undergraduate medical education. But we also believe there is some scope for introducing shorter medical education courses for graduates in other disciplines, to broaden the field from which doctors are recruited.

**Table 2: Increase in medical school intake
to maintain home share at present level in the year 2020**

Future doctor wastage % per annum	Annual growth in demand for doctors - % p a		
	1.4 %	1.7 %	2.0 %
3.1%	0	800	1,800
3.3%	200	1,000	over 2,000
3.5%	500	1,400	over 2,500

15. Clearly, substantial numbers of overseas doctors will continue to be needed in order to meet the expected demand for healthcare. Many of these overseas doctors come to the UK for postgraduate training and then return to their own country. There are many advantages to the UK in providing this training, which is highly valued overseas, provided it is of equivalent standard to that received by UK doctors.

IMPLEMENTING AN INCREASE IN UNDERGRADUATE INTAKE

16. While a marked increase in medical student numbers appears necessary, the Government's decisions will inevitably be affected by what is practically possible in terms of likely available resources, the ability of the educational sector to manage the expansion, and the need to maximise quality, flexibility and value for money. The options include:

- expanding existing medical schools;
- adopting expansion based on existing schools, but expanding the geographical spread of clinical teaching facilities;
- expansion of existing postgraduate medical facilities to cover undergraduate education also; and
- the establishment of one or more new undergraduate medical schools.

When considering our recommendation for increased medical school intake, the Government will wish to consider these options and relevant developments, including those relating to the Report of the Dearing Inquiry into Higher Education, *Higher Education in the Learning Society*.

OUR RECOMMENDATIONS:

17. Given the changes facing the NHS and higher education in the next 20 or 30 years and the uncertainties inherent in looking this far ahead, our recommendations are designed to provide a flexible and cost-effective approach, which can be reappraised in the future as necessary.

Medical school intake

1. The annual intake of medical students should be increased by about 1,000 as soon as possible and in the most cost-effective manner.

Medical education

2. Clinical courses with graduate entry should be developed, while ensuring that such courses comply with EEC Medical Directive 93/16/EEC.

3. Medical schools should continue their efforts to minimise the level of wastage from courses, thereby increasing the proportion of entrants that qualify as doctors.

Overseas students

4. While the intake of medical students is being increased by 1,000, the number of

undergraduate medical students from overseas should be held constant.

Recruitment and retention

5. The NHS and other employers should give further attention to improving recruitment and retention, for example, via improvements to training (in conjunction with the GMC, universities and the medical royal colleges), career planning and counselling, and increased use of flexible working patterns, to maximise doctors' participation in the NHS or other medical fields.
6. The NHS, in conjunction with the GMC and the medical royal colleges, should aim to attract a sufficient number of high quality overseas doctors by offering training of the same high standard as offered to home doctors.

Improved information and analysis

7. Further attention should be given to the need for better information and research, for example, in relation to levels of wastage (particularly from medical school), skill mix, productivity and flexible working, in order to assist future planning and monitoring.
8. Given that the health and healthcare environment is continually changing, further consideration should be given to the likely effects on the demand for doctors of policy changes, demography, working patterns (including skill substitution) and economic factors, with a view to continuing to refine the approach and analysis in the future.

1: INTRODUCTION

INTRODUCTION

1. This is the Third Report of the Medical Workforce Standing Advisory Committee (MWSAC). Our previous Reports considered likely growth in doctor numbers and the implications of the long-term need for the UK to move towards self-sufficiency. This led us to recommend moderate increases in medical student numbers. These increases are being implemented. In this Report we re-assess the likely future demand for doctors and appraise the appropriate medical school intake for the early years of the next millennium. We also make a number of recommendations aimed at improving the balance between home supply and the demand for doctors.

Terms of reference

2. Our terms of reference remain:

to advise the Secretary of State for Health on future developments in the balance of medical workforce supply and demand in the United Kingdom, taking account of resource assumptions and other guidance which the Secretary of State, in consultation with other Health Ministers, may give to the Standing Advisory Committee; and

to make recommendations about the medical school intake, including the balance between home and overseas students and the timing of any changes, taking into account the resources available within the Funding Councils'¹ aggregate funding and from overseas students' fees, as well as the facilities for clinical students.

Membership

3. The Committee was appointed in 1991 by the Secretary of State for Health as an expert committee, rather than as a representative one. Members contribute a range of expertise in medical, academic, NHS senior management, statistical, social and economic fields. Since our Second Report in June 1995, a number of members have retired and new members have been appointed. A full list of the membership is at Annex 1.

4. Our Secretariat is provided by the NHS Executive and by the Department for Education and Employment. We are assisted by observers from the Scottish Office Department of Health, the Welsh Office and the Department of Health and Social Services in Northern Ireland.

OUR ROLE

5. Our task is to give advice that will ensure that the UK is able to secure an adequate supply of appropriately trained doctors for all sectors and specialties in the NHS and for other fields of medical employment, both in the private and public sectors. Thus, we must

¹ *Funding for medical schools is now through the three Higher Education Funding Councils in England, Scotland and Wales and the Department for Education, Northern Ireland Office.*

consider broad trends in both supply and demand as they affect the UK as a whole, taking account of resource implications and affordability.

6. However, we are not directly concerned with short-term issues such as the distribution of doctors across the country or between specialties or sectors, nor in medium-term workforce planning. The four UK health departments have their own arrangements covering these issues.

OUR APPROACH

7. As the timescale of medical education and training is long, we must necessarily project our views of supply and demand some 20 years into the future. Inevitably this introduces considerable uncertainty since both supply and demand will depend on future trends in a number of different areas, many of which are uncertain.

8. As a Standing Committee, we have been able to take an incremental approach based on views on the growth in doctor numbers derived from an examination of historic trends and evidence provided to us by interested groups. Our First Report contained recommendations aimed at resolving some short to medium term issues, coupled with a small increase in medical student numbers. In our Second Report, we re-examined indicators of a potential shortfall of doctors and reaffirmed the need for the UK to maintain an appropriate balance between home and overseas (and other EEA) doctors. This led us to recommend the moderate increases in medical student numbers which are now being implemented. However, we now conclude that growth in demand is, and will continue to be, greater than previously anticipated and that a range of responses is now needed.

9. We took account of the recent policy developments that we thought likely to affect the number of doctors required. While we recognise that supply and demand are influenced by price (including the pay of doctors), we have chosen to set aside pay considerations in reaching our recommendations.

10. Our overall methodology can be summarised as follows. We considered:

- a. likely health patterns and the demand for healthcare in the future; and
- b. the extent to which the expected growth in these might be met by doctors, as contrasted with other healthcare staff.

In other words, we assessed the likely future demand for doctors, taking account of possible changes in working patterns. We then considered how the required increases in numbers of doctors might be achieved, in terms of the balance between UK-qualified doctors and those who qualified in other EEA countries or overseas. Within the former group, we also assessed whether the additional doctors might be secured via better retention of the existing pool of qualified doctors, as opposed to increasing the numbers entering undergraduate medical courses.

11. Considerable change in NHS organisation and healthcare delivery has occurred during the past decade, and is likely to continue for the foreseeable future. There is, inevitably,

uncertainty over a long planning horizon and this has played a significant role in our thinking and in framing our recommendations. While we regard our assumptions as sensible in the present context, we realise that it is important to keep the interactions between the policy environment and the factors which influence the supply and demand for doctors under review, especially as the timing of this Report has not permitted us to take full account of the Government's current initiatives in relation to the NHS, the nation's health, etc. Our recommendations were influenced by views on the future demand for doctors, on wastage and retirement from the medical profession. These factors, which are themselves subject to uncertainty, have been combined (*via* the workforce model described in Chapter 5) with views on the appropriate share of the medical workforce who qualified in the UK, in order to make judgements about future medical school intake.

METHOD OF WORKING

12. We have addressed the task facing us by:

- **Taking Evidence:** as with our earlier Reports, we have taken evidence from interested parties concerning their views of the likely balance between supply and demand for doctors and related issues. Chapter 2 summarises the main points made in evidence while Annex 2 lists the bodies who gave evidence.
- **Analysis:** we have used data from the four UK health departments and other official bodies, together with data from researchers, to analyze the likely future supply of, and demand for doctors. We have carried out sensitivity analyses to test the potential impact of short to medium term measures aimed at improving retention as well as long-term measures to increase supply. We have also considered the financial issues surrounding a further increase in medical school numbers.
- **Research:** we commissioned reviews of issues relating to women doctors, flexible working and retirement; and had the benefit of research commissioned by the Department of Health following recommendations in our First Report. The latter included the cohort studies into doctors' careers carried out by the UK Medical Careers Research Group (MCRG) at the University of Oxford and studies into skill mix in primary care carried out at York University. Other research has influenced our thinking and is cited in the bibliography at the end of this Report.
- **Consultation:** we have consulted informally with a number of interested parties. This has enabled us to review and develop our views during the course of our work.

13. This work, taken in the context of the changes which have taken place in the NHS in the 1990s, led us to conclude that there is, perhaps, more uncertainty about the future than one might have foreseen even a few years ago. Because of this, it is important that the healthcare workforce in the UK has the ability to respond to change on various timescales. Our response to this increasing uncertainty is:

- to plot the likely course of future supply and demand and to make recommendations on medical school intake to cope with the anticipated long-term trends;

- to consider a range of measures and response strategies intended to operate in the short- and medium term.

PROGRESS ON PREVIOUS RECOMMENDATIONS

14. As regards our previous Reports, the main focus was on our recommendations on the target medical school intake. Our previous recommendations have been, or are being, implemented as follows:

- **First Report (1992):** an increase in medical school intake by 240 students above the target set as a result of the Todd Report, resulting in a revised target figure for the UK of 4,470 places, including an increase in the number of places reserved for overseas students to around 340, representing approximately 7.5% of the total number of students. These increases were implemented (Table 1.1).
- **Second Report (1995):** a gradual increase in medical students for five years, from 1996, to arrive at a maximum annual target intake of 4,970 by the year 2000, coupled with a recommendation that the higher education bodies have regard to the desirability of achieving cost-effective expansion in planning for the increased target.

Table 1.1 shows that, in 1996, an intake of 4,820 had already been reached, leaving only 150 further students to reach the target.

Table 1.1 - Entrants to UK medical schools

	1990	1991	1992	1993	1994	1995	1996	1997
Target	4119	4119	4119	4119	4470	4470	4736	4834
Actual	4311	4320	4449	4531	4778	4699	4820	n/a

Source: Higher Education Funding Council for England (HEFCE)

Update on other recommendations

15. Significant progress has been made in implementing a number of other recommendations made in our previous Reports, as discussed in Annex 3. These included flexible working and other measures to increase retention of trained doctors, and the effectiveness of current training, together with research concerning skill mix and the career patterns of doctors (eg their reasons for leaving medicine and their future career intentions). The analysis for this Report has benefitted from this research.

2: SUMMARY OF EVIDENCE

1. We invited interested parties to give their views on future demand for healthcare, the likely balance between supply and demand for doctors, and related issues which we felt could have a significant impact on the number of doctors required in the future. We also requested evidence from parties involved in the provision of undergraduate medical education on the capacity of the system to accommodate additional students. This evidence is summarised below.

LONG-TERM DEMAND FOR HEALTHCARE

2. We consulted widely among interested parties. The unanimous view was that demand for healthcare will rise significantly over the next twenty years and that MWSAC should plan for meeting an increase in the demand for healthcare. Although the rate of increase was not specified, demand was expected to grow faster than the long-term historical trend would indicate. The main reasons given for this view were:

- demographic changes, with an increasing proportion of elderly people in the population;
- medical advances, making new treatments available for diseases not currently treatable;
- rising expectations from the public for medical investigation and treatment both in primary and secondary care;
- society's view that high quality healthcare widely available from the NHS is desirable;
- political initiatives such as the reduction of waiting times.

It was thought likely that there would be a political will to maintain high levels of funding to support growing demand. Overall, demand for healthcare was thought unlikely to be affected by any future changes in provision between NHS, private or voluntary sectors as all will require doctors.

LONG-TERM DEMAND FOR DOCTORS

3. All those who gave evidence considered that doctor numbers would need to increase over the next 20 years to meet the increasing demand for healthcare. It was suggested that action is needed to mitigate the current shortages of fully trained doctors and to ensure sufficient doctors for the future.

4. Factors seen as likely to impact on the number of doctors, included changes to patterns of work, brought about both by legislation and social expectations and behaviour. It was thought that bringing junior doctors within the scope of the European Working Time Directive would significantly increase the number of doctors required to provide the same service. The changes that are occurring in society generally (eg more shared responsibility for child care; the demand for more leisure time; earlier retirement) would influence working

patterns. Medical graduates of today are less likely to be willing to follow the same working patterns as their predecessors. In most equivalent professions, changes to working patterns have already occurred and it is unlikely that medicine will be exempt from these changes.

5. All bodies giving evidence felt that policy initiatives in recent years had increased the demand for doctors. For example, the increased role for consultants and GP principals in structured training, meant that senior doctors would spend more time giving training while juniors would spend a higher proportion of their time being trained. These changes would need additional doctors to provide the service time lost to training.

6. Changes to the access point at which patients receive treatment were seen as unlikely to reduce demand. Furthermore, with the increase of outreach clinics in a primary care setting, the number of specialists was likely to increase. The development of modern medical techniques requiring doctors to develop their skills in more specialist areas, and thus the need for continuing medical education (CME), and other activities during the working life of a doctor, would also increase demand for doctors to replace the service lost to these activities.

7. Skill mix was seen as the only area that might reduce demand for doctors. While opinions diverged over the extent to which skill substitution would affect the number of doctors needed, it was considered unlikely to reduce the demand for doctors significantly. While most bodies felt that skill substitution would not have a major impact on the number of doctors required, some felt that it would impact on the need for doctors in some areas. More generally, it was pointed out that shortages of nurses, particularly experienced nurses, will limit the rate at which skill substitution could be introduced and that many nurses did not wish to take on medical activities. Substitution is only achievable if non-medical personnel are adequately trained to take over the duties of doctors, in order to ensure that quality of service is maintained. This would take time and resources.

SUPPLY OF DOCTORS

8. The bodies providing evidence felt that there were indications of an imbalance between home supply and the demand for doctors. They cited;

- shortages of doctors for appointment to consultant posts in many specialties;
- the reduction in the number of trainees in general practice to levels that are giving rise to concern;
- the increasing proportion of non-UK doctors in the hospital and community health service.

9. It was argued that this imbalance needed to be redressed, requiring action on present shortages as well as ensuring future supply. A particular need is to ensure that enough UK graduates are available to meet future demand for doctors without increasing the proportion of non-UK doctors.

10. While a further increase in medical student numbers was considered necessary, the time-lags involved in training doctors made it essential to improve utilisation of the present stock

of doctors. This would become increasingly important as the proportion of women doctors increased. A number of options were suggested aimed at flexible training and working and the need to ensure retention. These were:

- medical students: changes in the selection procedures of candidates for medical school, to obtain graduates with a wider range of skills and interests; development of curricula aimed at ensuring the provision of sufficient doctors for each healthcare sector; and, some accelerated undergraduate training for existing graduates.
- continuing implementation of the *Hospital Doctors: Training for the Future* reforms which have improved training but need to be fully implemented;
- flexible training and working should be extended to ensure that doctors do not have to leave the profession, for example, for domestic reasons. In addition to flexible training and family friendly policies, this includes changes to the duties of consultants at varying stages of their careers and more flexible employment status in general practice;
- extensions of schemes to re-train and encourage doctors to return to the profession;
- more flexible pension provision designed to encourage consultants and GP principals to retire later.

11. While research is needed on the contribution from an individual doctor over her or his working life, it was forecast that there would be a reduction in the whole life contribution from the doctors of the future (this expectation is not purely the result of the increasing proportion of female doctors). This reduction could be minimised by the flexibilities outlined above but would affect all sectors.

12. It was pointed out that gains had been made over the past few years in the productivity of individual doctors and the efficiency of providing service (Chapter 3 and Annex 4 discuss working patterns and productivity issues), despite the increase in the non-clinical workload of doctors. However, further marked increases in the productivity of doctors were not considered likely.

13. We were told that health service employers (and Trust staffing plans) need to recognise that half those graduating from medical schools are women and that the career patterns of doctors, both female and male, will be different from those of previous generations. The normal pattern for training and working in the future is likely to require more part-time posts; and staffing plans have to be developed accordingly.

SUPPLY/DEMAND BALANCE

14. The evidence put forward suggested that the current supply of graduates from UK medical schools, together with the increases recommended in our earlier Reports, was not sufficient to meet the long-term demand for doctors. There was also a need to develop a series of human resources policies to improve retention throughout the career of a doctor, which will ensure that the funds invested in training doctors are not wasted.

PROVISION OF UNDERGRADUATE MEDICAL EDUCATION

15. The various bodies involved in the provision of undergraduate medical education felt that there is additional capacity available within current medical schools to accommodate a substantial increase in medical student numbers, but that this could not be done without additional recurrent funding, together with some capital investment. It was suggested that investment to expand existing facilities would be more cost-effective than developing new medical schools and that it was important to take maximum advantage of the potential additional capacity in the current medical schools before the building of a new medical school is considered. (This is discussed further in Chapter 6.)

16. It was submitted to us that any increase in medical student intake should be accompanied by a review aimed at improving the methods used to ensure that the wastage from medical schools and the profession are addressed positively.

17. There was concern that the new recommendations on undergraduate education from the GMC, with its increased emphasis on training in a general practice setting, could place strain on the number of general practices within inner cities that would be able to provide training for undergraduates. There is an under-utilisation of rural practices and their role could be developed, thus increasing the number of students who could be accommodated.

18. The current geographical distribution of medical students does not reflect the distribution of population by region. It was suggested that the distribution of new student places might take this into account if it was thought that this imbalance needed to be addressed.

19. Some of those giving evidence felt that the current ceiling on the proportion of overseas students that can be accepted into UK medical schools, should be relaxed or removed. It was recognised that this would need to be implemented in a way which could be accommodated without undue pressure on NHS resources and which ensured that it did not displace students who would practise in the UK or affect the training provided to the UK students. It would provide the medical schools with an opportunity to diversify their funding sources and reduce the dependence on central government funding. (We discuss the issue of overseas students in Chapter 6 but reach a different conclusion.)

20. It was felt that flexibilities should be introduced to allow recognition of a previous degree course and the possibility of a conversion course from non-medical professions. This is an area which should be considered as a modest but potentially important means of responding more quickly when imbalances develop between supply and demand.

3: FACTORS INFLUENCING DEMAND

1. Our overall approach (outlined in Chapter 1) was to consider likely future demand for healthcare, the implications of this for the number of doctors needed and how this number might be secured. All the bodies who gave evidence felt that the demand for healthcare was likely to increase over the next 20 years, with a concomitant increase in the demand for doctors. Over this timescale, there are innumerable influences that will impact on the demand for healthcare and, separately, on the demand for doctors; so prediction of the future demand for doctors necessarily covers a range of possible scenarios.

PAST TRENDS AND PREVIOUS FORECASTS

2. The average historic rate of growth in total doctor numbers over the last two decades has been 1.8 % pa (Table 3.1), with growth being greatest in the hospital sector. Comparison of this rate with the published forecasts of the demand for doctors in previous reports (Table 3.2) suggests that the projected growth in doctor numbers has been consistently underestimated. This led to insufficient home supply and the need to import overseas doctors in increasing numbers (Section 4.2) to balance supply with demand.

Table 3.1: Past growth in doctor numbers in the UK

Number of doctors in the NHS	1976	1986	1996	Growth rate per annum		
				1976-96	1976-86	1986-96
Total	71,220	85,160	102,610	1.8 %	1.8 %	1.9 %
<i>of which:</i>						
Hospital Consultants	14,100	17,160	23,680	2.6 %	2.0 %	3.3 %
Unrestricted GP Principals	25,380	30,180	33,230	1.4 %	1.7 %	1.0 %

3. Previous reports do not always make explicit the assumptions used and the projections adopted. There seems to have been understandable caution concerning the likely future growth of public expenditure on the NHS and, on some occasions, Committees were asked to base their work on modest expenditure assumptions.

4. Perceptions of likely future demand will inevitably evolve, for example, as the impact of service and workforce policies on the demand for doctors becomes better understood. The virtue of a Standing Committee is that we can revisit and adapt our recommendations in the light of changed circumstances.

Table 3.2 : Methods and forecasts adopted by past workforce committees

Report	Method	Options for growth rate of doctor numbers (p.a.)	Forecast growth rate of doctor numbers (p.a.)
Willink (1957)	Wastage rates, population growth, career structure	-	0.7%
Todd (1968)	Doctor/Population Quotient	1.3% or 1.5%	1.5%
Medical Manpower: the next 20 years (1978)	Resource Growth	1% -2% range	1.5%
Medical Manpower Steering Group (MMSG) - 1980/81	Resource Growth	1% -2% range for HCHS 1800-2000 GP list size	1.5%
Advisory Committee for Medical Manpower Planning (ACMMP1) - 1985	Resource Growth	0-2% range	1%
Second Advisory Committee for Medical Manpower Planning (ACMMP2) - 1989	Resource Growth	0.5% - 1.5% range	1%
Medical Manpower Standing Advisory Committee - 1992	Resource Growth	0% - 3% range for consultants 0% for other HCHS grades 0.8% for GPs	0.9% for HCHS 0.8% for GMS
Medical Workforce Standing Advisory Committee - 1995	Doctor Numbers	1%-1.7% range	1.3%

Note: The upper bound was frequently taken as the past rate of growth in the number of doctors while the lower bound was often a 0% or 1% growth rate.

DEMAND FOR HEALTH AND HEALTHCARE SERVICES

5. There is a strong historical correlation between the provision of healthcare and the number of doctors - thus an increase in healthcare has resulted in a proportionate increase in the number of doctors. While it does not necessarily follow that long-term historical trends will continue, convincing reasons would be needed if we were to expect significant long-term variation from them. Such factors as R&D leading to technological advances, changes in the way care is delivered, shorter stays in hospital and the impact of increasing quality could lead to departures from the trend. (Ways in which changes in the proportion of healthcare delivered by doctors and in the productivity of doctors may influence the demand for doctors are discussed later in this chapter.)

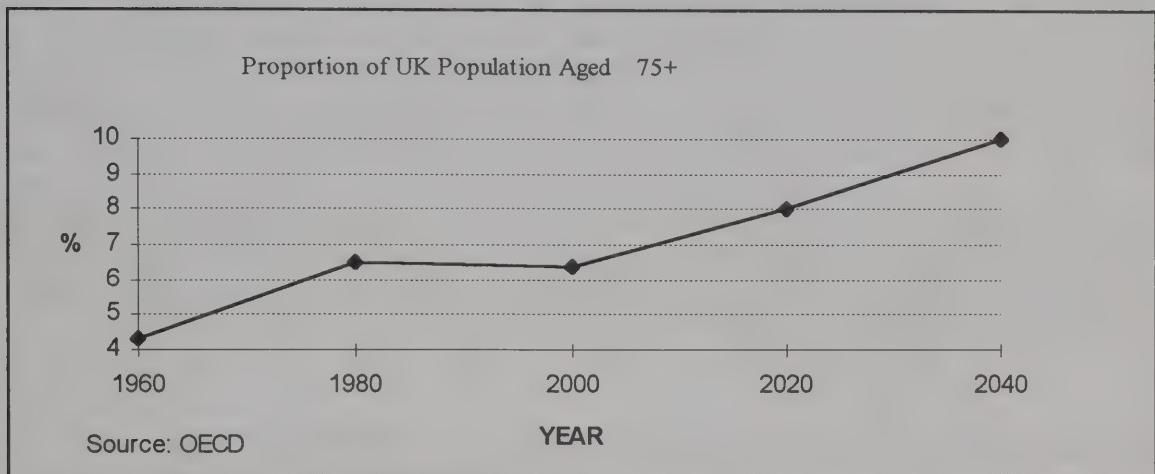
6. All parties giving evidence on the future demand for healthcare (see Chapter 2) saw it as likely to increase, with the need for funding for additional healthcare in both the NHS and independent sectors remaining strong. The evidence included:

- the population is forecast to continue growing into the next century, with the very elderly population experiencing the largest growth rates (Figure 3.1). Apart from increasing

morbidity associated with age, which is likely to lead to increasing demand for consultations, this group is likely to have complex needs and require greater input from GPs;

- rising expectations on meeting healthcare needs, on access and on quality. (The availability of information in the media and, increasingly, through information technology contributes to rising expectations.)

Figure 3.1: Increase in proportion of population over 75



7. Primary Care: The evidence on patient demand for GP services suggests an increase in the tendency of individuals to consult their GPs, whether driven by policy changes such as expansion in community care, or by the introduction of a wider range of services in primary care. Moreover, there appears to be an increase in the number of problems or topics dealt with by GPs at each consultation. Some factors can and will compensate for increased demand for consultations: more are taking place in the surgery and on the telephone, and fewer in patients' homes.

8. Medical Technological Change: Our last Report surveyed the effect of advances in medical technology on medical care in a number of areas. We recognised that medical technology is an area where uncertainties are paramount and that there is a growing awareness that it is important to identify those technological advances which may significantly affect the delivery of healthcare and speed up the pace of their development. While it is conceivable that technological changes will ultimately reduce the demand for doctors, there is no evidence for this possibility as yet and recent empirical experience is against it. There are no indications that fewer medical personnel will be required to provide healthcare as the diversity and extent of medical technology increases.

9. Acute Care: There are a number of significant pressures affecting acute services which are placing heavy demands on the NHS in every locality. Developments in primary care will have implications for the shape and extent of the secondary care sector; effective and efficient use of acute beds depends on the effective operation of agreed hospital discharge policies and adequate long-term continuing care arrangements; the clinical effectiveness programme is an important initiative with relevance for all medical specialties. Pressures include the rising

demand for care and, in particular, ensuring there is the capacity to respond promptly and effectively to emergency need as and when it arises.

10. *Changing Ways of Delivering Care:* A number of factors call both for more doctors and for a more consultant-based workforce, rather than for more doctors in the training grades. These include the increase in day-case surgery, the fact that there are now more invasive investigations and the fact that, typically, patients now stay in hospitals for short periods of intensive investigation and treatment.

11. *Quality: R&D, Evidence-based Medicine and Audit:* We expect continuing emphasis on high quality and ways to maintain and improve it. Factors which influence quality include R&D (with concomitant technological advances), evidence-based medicine (taking decisions informed by good quality research-based evidence) and clinical and medical audit. The main message from the evidence we received was that the full effect of factors such as evidence-based medicine and increasing participation in audit arrangements has not yet been seen. Since they promote effective service delivery (management tasks), identify effective treatments (medical audit) or contribute to the quality of the next generation of doctors (teaching and training), their effect on the demand for doctors is difficult to predict; but the increasing pace of change of technologies with which doctors must remain abreast suggests a need to monitor this area closely.

PROPORTION OF HEALTHCARE DELIVERED BY DOCTORS: SKILL MIX

12. There are continuing changes in skill mix. In assessing the potential for further skill mix changes to affect the future demand for doctors (Annex 5), it is important to consider the extent to which substitution is feasible in terms of standards of care, costs, training requirements and recruitment into the various professions. This means considering how much of the potential for skill mix change is economically and practically feasible and what the rate of change might be. While skill mix appears to be an essential mechanism to help manage changes of the scale and complexity currently underway in the NHS, the consequences of changing the skill mix on the future requirement for doctors are not clear. Even so, having regard to all the evidence presented to us, we do not believe that skill mix changes will do a great deal to ameliorate the growth in the demand for doctors. They may, however, enable other healthcare needs to be met.

DOCTORS' WORKING PATTERNS AND PRODUCTIVITY

13. Many of the changes in working patterns discussed below are aimed at improving some aspect of "quality", but may have some quantitative impact. However, the magnitude of the effect on demand for doctors is difficult to assess since the benefits in terms of patient care will offset part of the extra time involved in activities aimed at improving quality. Based on limited evidence, a number of these changes appear likely to require an increase in doctor numbers.

Working hours

14. *The New Deal on Junior Doctors Hours* has not yet been fully implemented, with a

hard core of posts in the acute specialties over the 56 hours/week actual working hours target. Pressures to increase service levels coupled with the financial constraints faced by the NHS and shortages in some key specialties, suggest that further progress may be harder to achieve. Notionally, the present shortfall in achieving the target corresponds to a significant number of doctors - in practice, solutions might involve other staff groups through skill mix changes. Even so, part of the shortfall might need to be met by additional doctors, both in the training grades and through the creation of career grade posts. However, there are supply constraints, particularly bearing in mind the extra doctors needed to implement *Hospital Doctors: Training for the Future*.

15. **The European Working Time Directive** (Annex 4) now applies to the UK and there is also the prospect that doctors in training may be brought within its scope. We have not assessed the effect of the application of a 48 hour limit to the working week on the medical workforce in detail. The likely consequence, however, is a significant increase in the number of doctors needed to meet the same service load.

16. **Flexible Working:** There is a general move towards more flexible working patterns. Flexibility in the medical career structure includes flexible (ie less than full-time) posts, together with job sharing, flexi-time, shift work and other patterns of work which may help those with family or other commitments outside their working environment. These patterns are intended to improve retention of doctors. This is seen as increasingly important with the rise in the proportion of women doctors (Annex 4). With some doctors now taking career breaks or undertaking flexible training, we must distinguish between the "whole time equivalent" (wte) and the number of doctors needed; we expect the wte/number ratio to fall, putting upward pressure on the number of doctors needed (see also Section 4.1).

Non-clinical/clinical activity split

17. Implementation of *Hospital Doctors: Training for the Future* is introducing planned and structured training (see Annex 4) to curricula set by the medical royal colleges. In addition, improvements in training for SHOs, the need for which was highlighted in *The Doctors' Tale*, could have similar consequences and decrease the proportion of time junior doctors spend in service delivery. This may mean that consultants will contribute more time as trainers and less time on service provision, placing further pressure on the number of doctors needed.

18. It is difficult to assess the full implications of *The New Doctor* (Annex 4) on the supply/demand balance. Where general clinical training is already good, the document does no more than synthesise good practice; but, where training is currently poor, it could have a significant effect. It seems likely that the recommendations will curtail PRHO service contribution and warrant more input to PRHO training from NHS staff. However, by giving PRHOS a positive initial experience, it may make it more likely that they will stay in medicine.

19. Professional development and the ongoing emphasis on quality implies the need for lifelong learning and, for professionals, the ability to adapt to change. The increasing involvement of fully trained doctors and non-medical staff in continuing professional development (CPD) and continuing medical education (CME) throughout their careers is an enormous investment in quality. The resultant time commitments for career grade doctors

will require an increase in the number of doctors, if time for training and professional development is not to reduce the provision of services.

20. In addition, other factors could reduce the proportion of time that an individual doctor can spend in providing service. These include increased time spent on training for, and participating in, clinical and medical audit activity, and in management activities by consultants (eg the greater involvement in multi-disciplinary teams leads to consultants leading more healthcare teams than previously, while some have roles as clinical and medical directors) and by GPs.

Evolving patterns of clinical care

21. Health service policies have promoted the care of patients in local communities rather than in institutions; and at home rather than in hospital, where this is clinically appropriate. The results of these policies include:

- an enhanced role for the primary care team in caring for people who would previously have been in hospital. Increasing emphasis on primary care may result in some transfer of work between the secondary and primary care sectors which may extend the role of the GP (eg through extended primary-care centres) and there could, for example, be greater provision on a local basis, minimising the need for people to visit hospital;
- a number of specialist services establishing a community-based approach. Other specialties, while maintaining their hospital base, have developed new relationships with the GP, particularly in the continuing care of people with disabilities or chronic illness.

22. The consequences for medical staff include:

- the need to ensure that all GPs are competent and confident to deliver services for groups of patients who would previously have been managed within specialist services, often within hospital. This will include people with complex disabilities, with chronic illness, and those discharged soon after an emergency or elective admission;
- the need to ensure that, where appropriate, specialists work from a community-based perspective, taking account of the wider needs (including social needs) of the patient and their family; and work with GPs and other members of the primary care team to deliver shared care where this is in the best interests of the patient.

These changing working patterns and time commitments could influence the overall demand for doctors.

Assessing future productivity

23. Future doctor productivity (in terms of the actual services delivered by individual doctors) will depend on the balance between factors likely to reduce the service contribution per doctor (reductions in the average weekly working hours for doctors, and doctors spending more time on non-clinical duties, teaching, CME, etc) and increases in productivity resulting from day-case surgery and shorter hospital stays. We have considered a range of possibilities in formulating the future demand scenarios discussed below.

MEDICAL PRACTICE OUTSIDE THE NHS

24. Although the NHS is the major employer of doctors in this country, we must also take account of the effect of non-NHS sectors, ranging from private medicine to industry (particularly in pharmaceutical companies), the armed forces and government departments, on the demand for doctors (see Annex 6 for details). Since these sectors are relatively small, we have adopted an approximate approach.

25. Firstly, we assumed that the overall demand for healthcare and for doctors will be little influenced by the precise split between the NHS and other sectors, thus simplifying our demand and supply model (Chapter 5), though in practice any major shift between these sectors could influence both the demand for healthcare and the demand for doctors. Secondly, we note that many of the doctors who work in other sectors also hold NHS contracts and provide service within the NHS.

26. Thus the overwhelming majority of doctors working in medicine in the UK are recorded in the statistics on NHS doctors used in this Report. (There were an estimated 7,000 doctors not recorded in Departmental statistics in 1986.) Set against these facts, and the scale of the other uncertainties identified in this Report, we feel that non-NHS employment can be safely set aside for the purposes of our projections.

FUTURE DEMAND SCENARIOS

27. In our last Report we assumed future growth between 1% pa and 1.7% pa but recommended keeping this growth assumption under review. Some of the factors discussed above seem more likely to suppress demand (eg changing skill mix, improvement in productivity) while others (mainly relating to changes in patterns of working and of service delivery) seem more likely to lead to it accelerating more rapidly. After lengthy consideration, we have come to the conclusion that higher growth assumptions are appropriate to reflect the long-term trend and that factors now operating are likely to raise the rate of growth in doctor numbers.

The central (base) case

28. Our "baseline" or "central" case projects a 1.7% pa growth in total demand for doctors throughout the projection period, ie slightly lower than the average 1.8% rate of growth in total doctor numbers during the past 20 years. This assumption seems reasonable in the light of: expected economic growth; the continuing overwhelming popularity of health expenditure with the public (1996 British Social Attitudes Survey); and the high correlation that there has been in the past between expenditure growth and doctor numbers.

29. Projecting at 1.7% pa to 2020, would bring the UK's doctor/population ratio to about 2.7 per 1,000. That would be about the same as the 1990 OECD average, excluding the UK (Table 3.3), reproduced from our Second Report. The OECD average has been rising more quickly than the UK's doctor/population ratio. Thus, if trends in the rest of the OECD were to continue, the UK would, on our baseline projection, lag further behind the OECD.

Table 3.3: Physicians per 1000 population for OECD countries

OECD Physicians per 1000 Population					
Australia	1.9	Greece	3.4	New Zealand	1.9
Austria	2.1	Iceland	2.8	Portugal	2.9
Belgium	3.4	Ireland	1.5	Spain	3.8
Canada	2.2	Italy	3.9	Sweden	2.9
Denmark	2.8	Japan	1.6	Switzerland	2.9
Finland	2.4	Luxembourg	2.0	Turkey	0.9
France	2.7	Netherlands	3.5	USA	2.3
Germany	3.1	Norway	3.1	OECD Average excluding UK	2.6
				United Kingdom	1.5

Sources: *OECD Health Data (1991)* and UK Departments of Health

Note: Our Second Report attached a statistical "health warning" to these data. There is no guarantee that like is being compared with like. For example, part time working may vary between countries. While the data are supposed to represent employed doctors, we think that they may sometimes refer to registered doctors.

Variant scenarios

30. It is normal planning practice to explore both *high* and *low* scenarios. In doing so, it is important to avoid concentrating on a *low* scenario - this would run the risk of repeating the persistent under-forecasting referred to above. We therefore adopted the following scenarios:

- **central case:** 1.7% pa growth in overall doctor numbers, as discussed above. It assumes that factors which tend to dampen demand growth (productivity improvements, changing skill mix) and those which might accelerate it (eg implementation of *Hospital Doctors: Training for the Future*, clinical/medical audit, CME and the trend towards shorter hours among junior doctors) balance in a way which results in approximate continuation of the historic growth rate;
- **lower case:** 1.4% growth in overall doctor numbers. This was the central growth assumption in our Second Report. This scenario could arise if factors such as improving productivity and changing skill mix dominate, thus dampening the growth in demand for doctors;
- **higher case:** 2% growth. This scenario could arise if factors which might increase the demand for doctors (eg implementation of *Hospital Doctors:Training for the Future*, clinical/medical audit, CME and the trend towards shorter hours among junior doctors) dominate. We doubt if 2% pa could be sustained throughout the projection period but growth may be relatively rapid over the next decade.

31. The upper and lower cases imply higher growth rates and a narrower range than we assumed in our last report. However, we now see 1.4% pa as a *lower* limit on likely future growth in doctor numbers. The balance between factors which tend to push demand growth up and those that might retard it will, of course, determine where growth might be in the range 1.4% to 2%. We believe that further consideration should be given to the factors affecting the demand for doctors (policy changes, demography, working patterns, skill substitution and economic factors) over the next two or three years, in order to assess whether our conclusions on future demand remain appropriate. This will need to take account of doctor productivity and the balance between factors likely to reduce the service contribution per doctor and those which increase productivity.

Consequences of uncertainty

32. The rate of change in the NHS has been rapid throughout the 1990s. It is extremely unlikely that anyone in, say 1975, could have anticipated the present organisational and management structure of the NHS nor many of the medical advances witnessed over the last 20 years. The further one looks into the future, the greater the extent of uncertainty. Change is likely to continue over our projection period. Uncertainty therefore plays a significant role in our thinking and in framing our recommendations.

33. We must plan within the envelope of uncertainty set by our growth scenarios (1.4%, 1.7% and 2% per annum growth) but recognise that unanticipated changes in demand are possible, probably over a much shorter timescale than the result of any increase in student numbers. We must also prepare for an uncertain future by increasing our ability to respond to changing circumstances on shorter timescales than at present. This means measures to enable the country to respond to short and medium-term changes as well as long-term trends, as discussed in Chapter 5.

4: SUPPLY

1. The medical workforce in the NHS is made up of doctors from the UK, from other EEA countries and from overseas. Section 4.1 examines issues relating to the "home" supply (including recruitment, retention and flexible working). The NHS has traditionally relied on substantial service contributions from doctors from outside the UK and Section 4.2 discusses issues relating to this group of doctors.

DEFINITIONS

2. Doctors may belong to one of the following groups:

- "*UK doctor*" - a UK national whose primary qualification was acquired from a UK medical school;
- "*other EEA*" - a doctor whose primary qualification was acquired within the EEA but not within the UK;
- "*overseas*" - a doctor whose primary qualification was acquired outside the EEA;
- "*overseas nationals who qualified in the UK*" - overseas nationals who graduate from UK medical schools and who may not have a right to residence in the UK.

These definitions are used in the statistical data presented in Annex 7.

MAKE UP OF THE PRESENT MEDICAL WORKFORCE

3. Table 4.1 shows that, for the UK as a whole, the "home share" of the medical workforce (ie the proportion of UK doctors in the medical workforce) has been falling, implying a widening gap between demand and home supply. Table 1 of Annex 7 summarises the current make-up of the medical workforce in the UK.

Table 4.1: Home share in the Medical Workforce

	England	Wales	Scotland	N Ireland	UK
1991	78%	77%	89%	78%	79%
1996	75%	71%	87%	85%	76%

4. The number and proportion of female doctors has been rising, reflecting the fact that about half of all medical students are now female and that the number of female qualifiers is now approaching the number of male qualifiers. Thus the increase in doctor numbers is largely accounted for by UK female graduates and overseas/other EEA (ie non-UK) graduates.

5. The number of medical staff in the Hospital and Community Health Service (HCHS) has grown more rapidly than in the GMS. The proportion of overseas doctors in the hospital workforce is significantly higher than that in the GMS (17% of principals are from outside the UK). This is presumably linked to changes made to the Immigration Rules in 1985 (see Section 4.2) and to the many opportunities for overseas doctors in the hospital training grades.

Current difficulties

6. There is difficulty in recruiting to general practice in a number of areas and there are shortages in some hospital specialties.

4.1: UK SUPPLY

7. Future supply depends on flows into medical school, through training and into the career grades. We commissioned work on female doctors, flexible working and retirement and considered results from cohort studies into doctors' careers by the UK Medical Careers Research Group (MCRG) and from other research. Other factors include the impact of the rising proportion of female doctors (for many of whom the traditional "male" career path does not seem appropriate), the need for "family friendly" and flexible working patterns, and how the contribution that doctors make during their career is likely to change (length of career and impact of flexible working). We must allow for flows out of NHS employment such as working abroad and leaving medicine entirely. Many of these factors will be influenced by changing social and societal aspirations

MEDICAL STUDENTS

8. The number of home applicants to UK medical schools has risen more rapidly over the last decade than the number of places available. There are consistently more than two applicants for every place, suggesting that demand is strong enough to make it possible to increase medical school intake significantly. This view is supported by the high "A"-level grades scored by applicants, including many who are not successful - the average score of new students is typically over 27, scoring a Grade A pass at A level as 10.

Drop out from medical school

9. Our earlier Reports discussed a range of estimates of drop out (summarised in Annex 8). For our analytical work (Chapter 5), we again assume 10% as our central case. Improved curricula (through the implementation of *Tomorrow's Doctors*) and better selection (discussed in our last Report) should reduce drop out. While some attrition is inevitable, there is some anecdotal evidence that drop out is falling and we have estimated the effect of this by considering a rate of 8%.

The PRHO year

10. Analysis of PRHO numbers suggests that between 3% and 6% of students qualifying as

doctors would not take up a PRHO post immediately. Some may take up a PRHO post later. A survey by MCRG of 1993 qualifiers in 1994 identified only 1.4% as preferring a career outside medicine, albeit at least double the rate of those who qualified in the 1970s and 1980s. The recommendations in *The New Doctor* should make drop out less likely during the PRHO year.

11. We have very little information on numbers of overseas-born students leaving the UK on qualification. In our last Report, we assumed a figure of 50% for overall wastage, to include wastage before and following graduation. However, this seemingly high figure includes those who obtain their equivalent to PRHO experience outside the UK.

POSTGRADUATE MEDICAL TRAINING

12. All doctors spend some time in the SHO grade and most either go into higher specialist training or vocational training. In our last Report, we noted that career paths in the UK are often considered by doctors to be conservative, inflexible, arduous and personally constraining. Some of this is changing. The need for doctors to combine family responsibilities with a medical career, makes it important both that suitable flexible training is available, and that it should be regarded as fully equivalent in standing to full-time training (see below).

13. MCRG have found significant differences between men and women in their choice of hospital specialty, while men are markedly less likely to enter general practice than women (Annex 8, Table 1). These trends suggest that gender differences will be important in considering the forces that will shape the future medical workforce.

RETENTION OF DOCTORS

14. Disaffection with medicine as a career may become a problem at any stage but significant *wastage* (temporarily or permanently ceasing to work in the NHS/university sector in the UK) most commonly occurs at medical school, in the first few years after qualification and towards the end of a career. Many doctors who have left the NHS rejoin after a period of time (eg returning from abroad, "secondment" or a career break).

15. Netten and Knight² used the 1991 OPCS Population Census to estimate the length of the economic working lives of health service professionals. This was 30 years for male doctors and 22 years for female doctors. Equivalent figures from the 1995 Labour Force Survey are 31.5 years for men and 22 years for women. Thus the current average for men and women together may be around 27 or 28 years, giving an annual wastage figure of between 3.5% and 3.7%. For our analysis we have assumed three variants for the future:

- **3.1% wastage:** this assumes that measures to improve retention result in an increase of about three years in the "average working life", despite the increasing proportion of women in the medical workforce;

² Work carried out as part of the Department of Health's Human Resources and Effectiveness research programme.

- **3.3% wastage:** this rate is a little lower than today and assumes that measures to improve retention more than counter-balance the effect of the increasing proportion of women in the medical workforce;
- **3.5% wastage:** this assumes that future wastage lies at the lower end of the present range, in other words that measures to minimise wastage just about cancel out the effect of the increasing proportion of women in the medical workforce.

These percentages are challenging and assume improved retention arising both from recent policy initiatives and from recommendations in this Report. (They have been taken into account in framing our recommendations as to the level of expansion that is necessary in medical school intake.)

16. MCRG data gives more detail for the first part of doctors' careers. Annex 8, Table 2 shows that, five years after qualifying, there were between 5% and 9% of doctors (for the different cohorts) not in medical practice and between 9% and 17% either not in practice or not in the UK. Equivalent figures some ten years or so after graduation, are broadly similar (Annex 8, Table 3). There is little sign that overall wastage has changed much over the years (one should avoid drawing undue inference from the behaviour of a single cohort).

MAXIMISING POTENTIAL

17. Improvements in postgraduate medical training including *Hospital Doctors: Training for the Future* should improve the training experience for doctors and this should reduce wastage rates. There may, however, be a risk of adversely affecting wastage now that young doctors have to choose their career earlier if too many make wrong choices. This argues for as much careers counselling as possible to maximise effective career choices.

18. The smaller working contribution for women doctors may be, at least in part, associated with career breaks; but it does point to the need for career patterns to be available that meet their aspirations. This includes the need for flexible training and working and for the greater flexibilities now being introduced into primary care.

Equal opportunities: flexible working and training

19. The changing nature of the medical workforce means that the NHS needs to be as flexible as possible in its approach to staffing arrangements, partly because of the increasing proportion of doctors who are women. Part-time working is not, of course, a new idea, nor is it confined to women: MCRG's 1994 survey of 1983 qualifiers showed that about 3% of men and 45% of women worked part-time. We believe part-time training/working offer benefits to the NHS locally and to doctors by:

- meeting the aspirations of many doctors (which may be linked to societal attitudes as well as their own circumstances);
- improving retention;
- optimising the use of resources;

- stimulating new ways of looking at work, thus offering wider benefits.
20. Flexibility includes opportunities for part-time posts, job-sharing, flexi-time, shift work and other patterns of working which may help those with family or other commitments outside their medical careers. It is not clear what the net impact of more doctors taking career breaks, undertaking flexible training or working flexibly will be. While the greater availability of flexible working should improve retention, it may also tempt some doctors who would otherwise have worked full time to reduce their working commitments. We must distinguish between the "whole time equivalent" (wte) and the number of doctors needed; we expect the wte/number ratio to fall, putting upward pressure on the number of doctors needed.
21. Annex 4 discusses measures to improve retention, including flexible training and working. We welcome these initiatives.
- ### Retirement patterns
22. In our earlier Reports, we assumed a slow fall in the average age of retirement. The available evidence for doctors (Annex 8) is limited but suggests a small recent increase in the level of early retirements. This seems to support our earlier view, as do trends in other employment areas.
23. Faced with a shortage of home supply, it is important to consider what might be done to determine and address some of the reasons why doctors choose to retire early. Many doctors still undertake some form of work related to medicine after retirement from the NHS. This suggests that this desire to work might be harnessed by the NHS through more flexible working arrangements, either within the same specialties or in some field which retiring doctors might move into (eg medico-legal work or management, training or consultancy), thus easing the burden on consultants in clinical practice.
24. The age at which consultants are first appointed should fall as a result of *Hospital Doctors: Training for the Future*. This means that consultants benefit from more time in the grade and, as they get older, some might like to see changing duties. This already happens to some extent, of course, but it has been suggested that this process might be taken further with jobs for those older consultants who wish it, being arranged to give them less stressful duties (eg reducing night work in the acute specialties). We believe there is merit in this idea if it results in improved retention, and that it is therefore worth exploring at both national and local level.

CONCLUSION

25. While there are many uncertainties in projecting the supply of UK doctors, it seems clear that demand will continue to exceed home supply. As discussed in Chapter 5, this necessitates a number of short and medium-term measures to help tackle and alleviate this problem as well as any long-term solution to increase UK medical student numbers.

4.2: NON - UK SUPPLY

26. Doctors who qualified outside the UK currently comprise 24% of the medical workforce and this proportion is increasing. This Section addresses the extent to which the NHS can, or should, continue to rely on non-UK medical graduates over the next 20 years.

POLICY BACKGROUND

27. Around 7.5% of medical students entering UK universities are not normally resident in the UK. Under the Immigration Rules, when they qualify as doctors they are (as newly qualified PRHOs) eligible for permit-free training status. This status is also granted to all overseas doctors in the hospital training grades, the majority of whom are likely to return home (Annex 7). Most EEA doctors are also believed to come for short-term training posts with little intention of staying in the UK.

28. Most overseas doctors in hospital career grades are likely to stay in this country, having previously spent some time in training posts in the UK. They might therefore be regarded as UK-trained, despite their primary qualification being from another country. Thus in practice we have trained and *retained* many overseas doctors: in England and Wales, 1 in 7 of the consultant grade and 2 in 3 of staff and associate specialist grades, qualified overseas. This raises the question of whether retaining overseas doctors should be a matter of deliberate policy. We return to this issue in the consideration of self-reliance below.

29. Trained overseas doctors, who wish to become GP principals, must now meet the stringent requirements of the Immigration Rules. The regulatory and administrative changes post-1985 have effectively stopped overseas doctors from entering general practice (Annex 7). The resulting lack of new entrants since 1985 means that the overseas workforce is ageing, with over half of doctors being over 50 and most of the remainder over 45. The practical consequence is that overseas doctors are predominantly and increasingly in the hospital sector.

30. Given our projections of home supply and demand, it is clear that the NHS will continue to rely on a substantial and, at least in the medium term, increasing contribution from non-UK doctors, many of whom will be in the training grades and expected to leave the UK on completion of their training. Inevitably, a number of overseas doctors who train in this country may wish to remain here and, in these circumstances, it is right that the NHS should be able to retain those who meet the UK's own requirements.

SELF-RELIANCE

31. In our previous Reports, we recognised that there are flows of doctors into and out of the UK and held that, when attained, self-sufficiency means that "*sufficient UK doctors should be trained in order that UK demand could be [fully] met, if the outflow of UK doctors to other countries was balanced by an inflow to the UK of EC and overseas doctors*". The recommendations in our previous Reports are based on this view.

32. We now favour the term *self-reliance*, as a long-term goal, and this was supported

strongly in the evidence we received. Self-reliance means relying largely upon UK doctors; it does not mean aiming for a workforce comprising entirely UK doctors. Some UK medical graduates work overseas, either temporarily or permanently and we expect a number of doctors from abroad to work in this country in their place. Self-reliance must be regarded as a long-term aspiration, given the current high proportion of overseas doctors and the current upward trend.

33. Even maintaining the "home share" at its present level would require a marked increase in medical school intake (at least in our middle and high demand scenarios - see Chapter 5). In considering whether this is appropriate, it is worth reviewing the issues surrounding self-reliance and the associated risks:

- if there are reasonably balanced flows of doctors into and out of the country, then there are mutual benefits in our training overseas doctors - for the individual doctors, for the countries they come from and for the UK (Annex 7);
- the further we are away from reasonably balanced flows, the greater the risk to these mutual benefits, since an unequal trade may not continue indefinitely. Retaining a significant number of the overseas doctors whom we have trained (as a matter of deliberate policy), would risk placing Britain's longer-term wider interests in jeopardy, while failing to meet the country's needs for a secure source of high quality doctors;
- most initial recruitment of overseas doctors is into the training grades with little directly into the career grades (Annex 7). There may be increasing reluctance (both within and outside the UK) to see young doctors from outside the UK coming to this country if the UK is seen to be becoming less self-reliant;
- perceptions about the appropriate proportion of UK-qualified doctors in the medical workforce.

34. Given the persisting difficulty in balancing demand and home supply and the length of medical training, it might be prudent to recognise the likelihood that the home share in the medical workforce may fluctuate. However, we believe that the UK should not deprive overseas countries of the doctors they have invested time and resources to educate. A balance has to be struck between the UK's short-term needs and the goals of becoming more self-reliant and of offering training for overseas doctors, while not depriving their home countries of their services in the longer term.

SECURITY OF SUPPLY

35. Faced with an increasing reliance on overseas and other EEA doctors, security of supply might be a vital issue, since there would be difficulties if non-UK doctors could not be recruited at the required increasing rate. Annex 7 discusses a number of factors on which security of supply depends, many of which are outside the UK's control. The immediate risks to security of supply are probably not great (the UK recruits from a wide range of countries so it is unlikely that there would be a substantial impact over a short period) but these risks could increase, particularly in the later part of our projection period. There are indications that Europe is moving towards a deficit of doctors in the early part of the next

century. It is probably reasonable to expect that developing countries will wish to develop their own postgraduate medical education infrastructure and will become less reliant on doctors training in other countries. Apart from the moral dimension (of systematically importing skilled labour from poorer countries³), we cannot expect that an unequal trade will continue indefinitely.

CONCLUSION

36. We favour *self-reliance* as a long-term goal, that is relying largely upon UK doctors, although not aiming for a workforce comprised entirely of UK doctors. This belief is supported both by the evidence we received and by the need to ensure security of supply in the longer term. Achieving self reliance would mean reversing the current trend towards an increasing proportion of doctors being from outside the UK. We suggest that it would be prudent as a minimum to maintain, and preferably to increase, the home (UK) share in the medical workforce. However, as discussed in the next Chapter, even maintaining the home share at its present level would require a marked increase in medical school intake (at least in our middle and high demand scenarios), with concomitant cost implications.

³ Our Second Report said "we would also avoid encouraging doctors to develop an international career at the expense of their home country which may be unable to attract replacement medical manpower".

5: BALANCING SUPPLY AND DEMAND: RESOURCES AND RISKS

1. This Chapter compares our three demand projections (Chapter 3) with the supply picture (Chapter 4).

THE BALANCE BETWEEN SUPPLY AND DEMAND

Analytical approach

2. We have used a simple model (Figure 5.1) to assess the likely future development of the medical workforce in the UK until 2020, in each of our demand growth scenarios under a range of assumptions concerning:

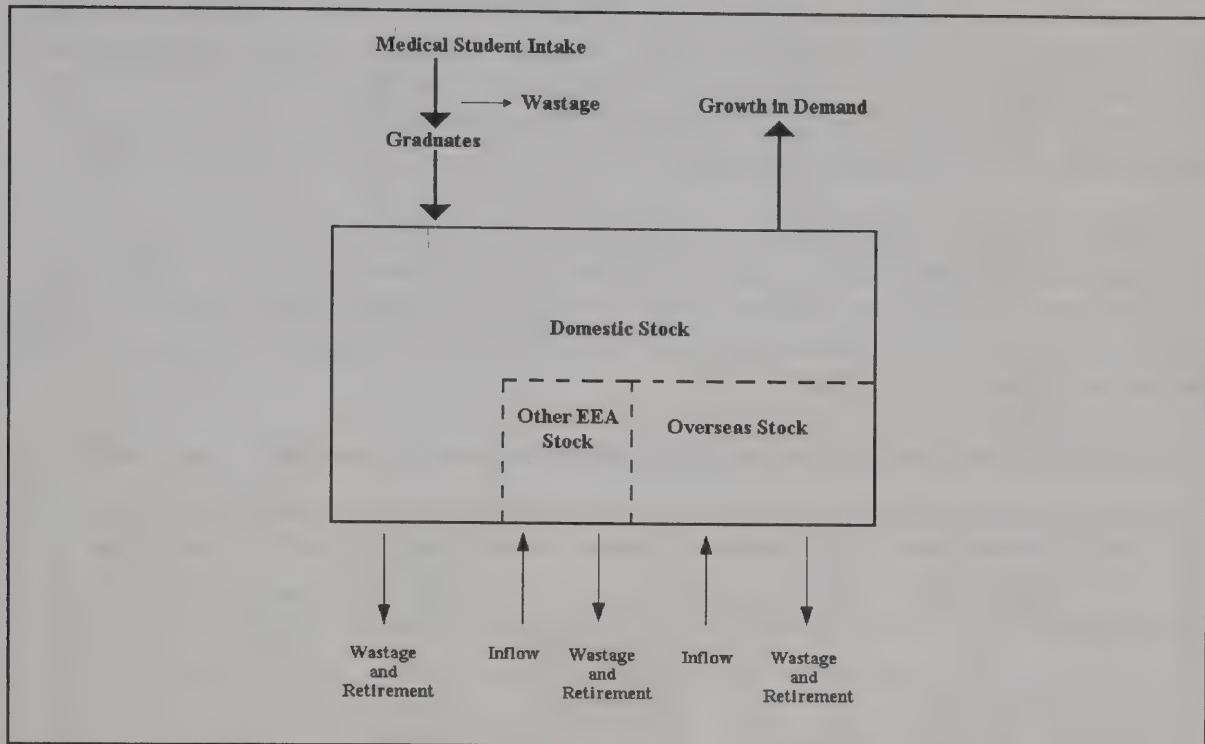
- medical student intake and wastage from medical school, giving a projected number of medical graduates;
- wastage and retirement from the stock of home doctors;
- flows into and out of the stocks of other-EEA and overseas doctors. In these cases wastage covers all outflows including doctors returning to their home country.

3. We have estimated the impact of increasing medical student intake on the future "**home share**" (ie the proportion of UK doctors in the medical workforce) assuming that the increases are phased in during the period 2001-2007. This share depends on the future demand for doctors and on wastage and retirement from the medical profession (both of which are subject to uncertainty) as well as on the annual intake to medical school. The home share, and the way it changes over time, provides a measure of the risk to security of supply - the lower the share, the greater the risk. Conversely, it also serves as a proxy measure of the risk of training too many UK doctors - the higher the share the greater that risk.

4. In addition to growth in demand, the following assumptions are used:

- **drop out rate of medical students:** The central assumption is **10%**. A reduction to **8%** (see Section 4.1) is equivalent to about 100 additional students on present intake;
- **UK-qualified doctors replace overseas doctors on a 1:1 basis.** This assumption relies on the fact that the overseas doctors pool is in a constant state of flux, with over 3,000 new entrants coming from overseas each year (Annex 7). We believe that, given the opportunity, Trusts would prefer to fill these posts with domestic graduates rather than overseas doctors;
- **annual wastage from total stock of UK-qualified doctors:** the wastage rate from the stock of UK doctors is a composite of death, retirement and non-participation (due, for example, to working overseas, or a career break or career move). For our analysis we have assumed three cases: **3.1%, 3.3% and 3.5%** per annum wastage (see Section 4.1).

Figure 5.1: Workforce Model



Results

5. We favour *self-reliance* as a long-term goal and believe that, as a minimum, the home share should be maintained at its present level of 76% and preferably increased. In saying this, we strongly re-affirm the need to move towards greater reliance on UK doctors. Given the extent of the imbalances between demand and home supply, this means a substantial increase in medical school intake, as illustrated in Table 5.1. Indeed some scenarios of future wastage levels and demand growth would require very large increases to medical school intake to maintain home share at 76%. Our recommendation on future intake is based on a balanced judgement, which should result in the maintenance of (or a slight increase in) the home share in many scenarios, while limiting the fall that would occur if growth and wastage rates turn out to be high.

**Table 5.1: Increase in medical school intake
to maintain home share in 2020 at its present level.**

Future Doctor Wastage % per annum	Annual Growth in demand for doctors - % p a		
	1.4 %	1.7 %	2.0 %
3.1 %	0	800	1,800
3.3 %	200	1,000	over 2,000
3.5 %	500	1,400	over 2,500

6. In focusing on 2020, it is important to realise that the home share changes from year to year and that the full effect of any increase in intake is not achieved for some 30 years after

it is first implemented.

7. Figure 5.2 (on the next page) illustrates the relationship between increase in medical student intake and home share for our central scenario, though there is no implication that our scenarios are necessarily valid over such an extended timescale as 40 years. With other scenarios (ie with different growth and wastage assumptions), a given increase in student intake would result in different patterns of home share between now and the year 2040.

8. Table 5.2 shows the relationship between growth rate, wastage, home share in the year 2020 and medical student intake (assuming 10% wastage from medical schools). The shaded areas are those where the home share in 2020 is close to the present value of 76%. Figures below and to the left of the shaded areas indicate a fall in home share, mostly to an extent that we would not find acceptable.

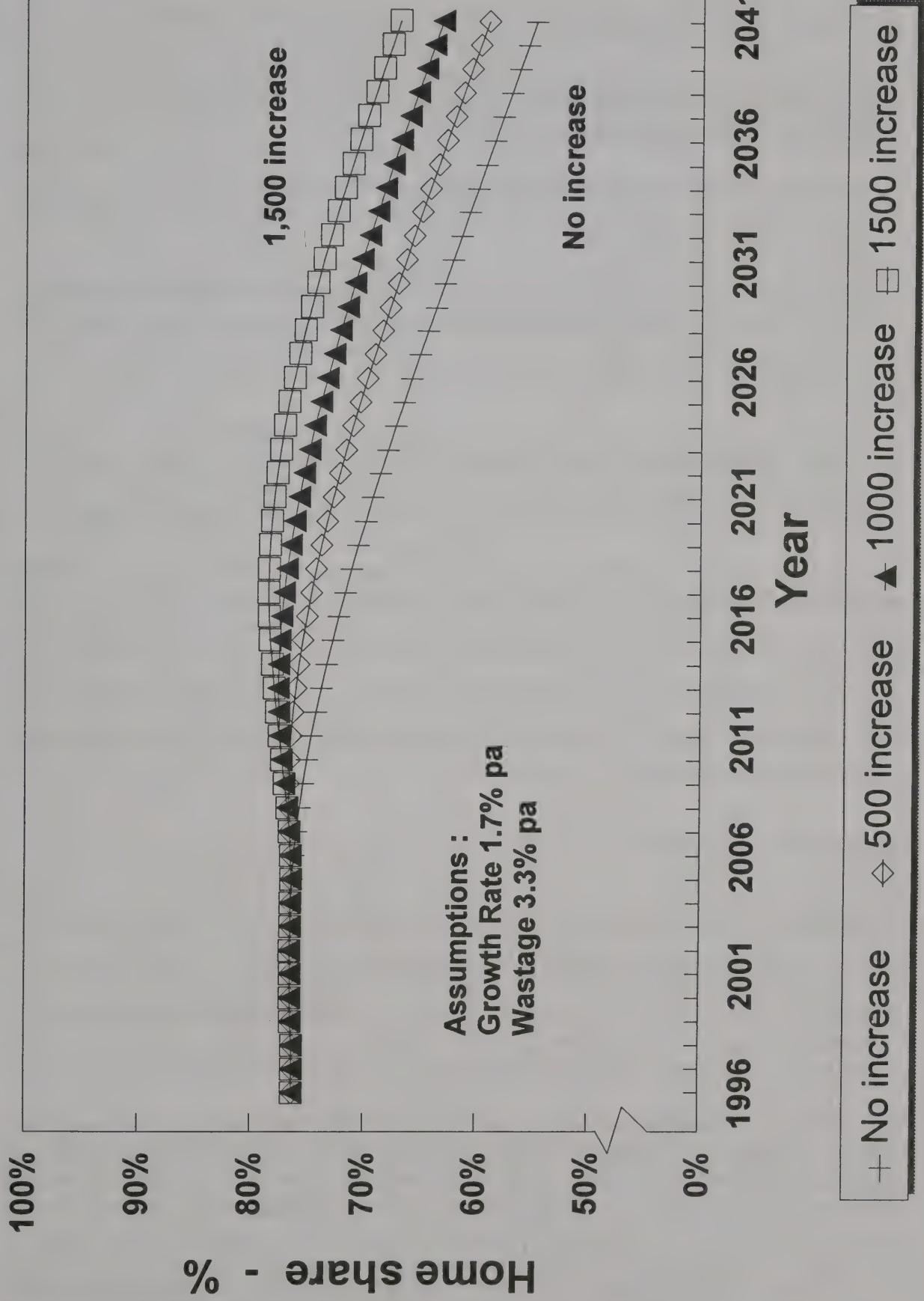
Table 5.2: Home doctors share in 2020 against increases in medical school intake.

Growth in doctor numbers % p a	Wastage % p a	Further increase in annual medical school intake:			
		zero	500	1000	1500
1.4 %	3.1%	77%	81%	84%	86%
	3.3%	75%	79%	82%	84%
	3.5%	73%	76%	80%	82%
1.7 %	3.1%	72%	76%	78%	80%
	3.3%	70%	73%	76%	78%
	3.5%	68%	71%	74%	76%
2.0 %	3.1%	67%	70%	73%	75%
	3.3%	65%	68%	71%	73%
	3.5%	63%	66%	69%	71%

9. It is useful to look at the results for the year 2020, both from the perspective of growth rate and from that of various possible increases in medical student intake. Firstly, for our three demand growth scenarios:

- **low growth (1.4% pa):** an increase in intake of up to 500 might be sufficient to maintain home share at its current level;
- **medium growth (1.7% pa):** an increase of around 1,000 seems appropriate for the middle wastage variant, but a larger increase would be needed if wastage remains at its current level of around 3.5%;
- **high growth (2.0% pa):** home share falls significantly unless medical student numbers increase substantially - an increase of around 2,000 (or more) would be needed to hold the home share at 76% in 2020.

Figure 5.2 : Home share for various increases in medical school intake



10. From the alternative perspective of possible increases in student intake:
- in all but the low growth scenario, and the most optimistic wastage rate in the middle growth scenario, expanding medical student intake by 500 is not sufficient to prevent a fall in the proportion of home doctors;
 - an increase of about 1,000 in medical student numbers would be sufficient to maintain home share in the central scenario (1.7% pa growth in the demand for doctors, and a future wastage level of 3.3%);
 - the higher and lower variants for demand and wastage point to different increases in student numbers. However, it would be unwise to base decisions on a belief that the low variants are the most realistic, because this would mean that future demand and wastage would both be below recent levels.
11. Under current circumstances, training too many doctors is highly unlikely. An increase of 1,000 in medical student intake would not produce a domestic over-supply by the year 2020, unless the demand for doctors grows more slowly than the population as a whole or the lifetime working contribution of a doctor increased to an entirely unrealistic extent.
12. An increase of about 1,000 in medical student intake would, broadly speaking, maintain the home share at about its present level in the central growth scenario by 2020, increase it in the low scenario, and limit the size of the fall in the high scenario. The results for our speculative extension of the scenarios to 2040 tend to support our judgement that an increase of 1,000 is appropriate. (If 2% demand growth applied, a further review of student intake would be needed in a few years time.) The results for the high wastage case underline the need to minimise wastage, given the further increases in student intake that would be needed to compensate for any failure to do so.

RESPONSE STRATEGY

13. Although the future is uncertain, it seems clear that action is essential unless reliance on non-UK doctors is to increase indefinitely. Bearing in mind that any further increase in medical student numbers (in addition to the target intake of 4,970 for the year 2000) will not have any impact on the number of UK-qualified doctors for approaching a decade, we believe that the NHS needs to be able to respond to short and medium-term pressures as well as to long-term growth. This requires a more responsive workforce system with active management of recruitment and retention issues.

14. Without a substantial increase in medical student numbers, we face a widening gap between demand and home supply, with concomitant risks to security of supply. Periodic increases in medical student numbers are a natural consequence of expanding the medical workforce. As it would not be prudent to rely on wastage being reduced to the maximum extent, we believe that an increase of the order of 1,000 in medical student intake is necessary. On the basis of our central assumptions, this would mean that, in the year 2020, there would be 155,000 doctors, of whom 77% would be UK-qualified, little different from the present proportion. The next Chapter discusses the resource implications of an increase of 1,000 in student intake and the benefits which can be offset against the increased costs.

Responding in the short to medium term

15. In the short to medium term, the gap between demand and home supply can be tackled through a range of measures aimed at increasing supply or tempering demand. In principle, this would involve action in the following broad areas:

- ◆ Increasing supply

- measures to improve retention of home doctors - eg uniformly high quality training, flexible working/training, family-friendly employment arrangements and attracting back those who are not currently working in medicine (eg via re-entry schemes);
- giving attention to how to motivate and retain those doctors who are considering leaving or retiring early;
- training more doctors, both in terms of additional undergraduates (resulting from our earlier recommendations) and postgraduate training for consultant and GP posts, and ensuring that opportunities for training are directed towards those sectors/specialties which are priorities for service development.

Failure to take these actions would result in greater reliance on overseas doctors (including in the career grades), while accepting that this may be a short-term necessity.

- ◆ Tempering demand

- slower progress on certain service and medical workforce policies if NHS management conclude that some aspects of these policies are not achievable and affordable at the present time;
- improved productivity (although some policies will actually reduce the proportion of time doctors can spend on direct patient care);
- skill substitution - ie transferring work from doctors to non-medical staff, while recognising that the scope for this might be limited, at least in the short term;
- reconfiguring patient services;
- slower growth in levels of patient services.

This means active management of the various flows identified in Figure 5.1, with each set of measures being considered in terms of short, medium and long-term action. Not all will produce benefits quickly. In addition, none of them is likely to be sufficient by itself, which points to the need for a coherent, flexible strategy.

CONCLUSIONS

16. We face an uncertain future in which the gap between home supply and demand will

become increasingly severe unless a range of measures are taken to address the problem. These measures must enable the UK to respond to short and medium-term changes as well as long-term needs; and require active management coupled with a more responsive system, although we recognise that this is difficult given the long lead-times. However, it seems almost certain that short and medium-term measures can only alleviate, not resolve, the growing gap between home supply and demand. Our conclusion is that a substantial increase in medical school intake is needed.

6: INCREASING STUDENT NUMBERS - OPTIONS, COSTS AND BENEFITS

1. In the previous Chapter, we argued that a substantial increase in medical student intake is needed. In this Chapter, we discuss how such an increase in student numbers might be achieved, the costs of doing so and the benefits that would arise.

OPTIONS FOR EXPANDING MEDICAL STUDENT NUMBERS

2. We are persuaded by the evidence we received that additional student numbers within current medical schools would require further revenue and capital funding, although there may not be a linear relationship between further intake and the funding required.

3. There are a number of ways in which an expansion of medical student intake might be achieved, including:

- a expanding existing medical schools, provided that we can be assured that increased numbers do not compromise quality;
- b adopting expansion based on existing schools but using a "hub and spoke" model or a partnership between an existing medical school and other university facilities. This expansion is based on establishing teaching units within NHS facilities and would involve an expanded geographical spread of teaching facilities;
- c expansion based on postgraduate medical schools either by linking with an existing undergraduate medical school in the area so as to provide clinical education, or by developing new undergraduate facilities;
- d developing graduate entry schemes, both to allow faster production of doctors than traditional courses (a "once-off" effect) and to broaden the field from which doctors are recruited. Such innovations would need to comply with the requirements of the EEC Medical Directive 93/16/EEC, eg on number of hours of medical training, and have the approval of the GMC Education Committee;
- e at least one new medical school: this would mean finding a university site which could be associated with a suitable teaching hospital.

4. For any increase in student numbers, it will be necessary to ensure that sufficient patients and staff are available to allow any increased intake of medical students to receive high quality training. The CVCP's Task Force on Clinical Academic Careers has recently examined the future of clinical academic careers with regard to recruitment and retention. They pointed out that the implementation of any increases in student intake (such as that recommended in this Report) will need an appropriate increase in clinical academic staff. We would expect this to be taken into account in any implementation plan.

5. Any expansion would need to be carried out in a manner and at a pace designed to achieve cost-effectiveness and to ensure that quality is not compromised (a point emphasised to us in evidence), while facilitating the possible development of different patterns of medical

teaching. The Funding Councils and the NHS should identify the most cost-effective options and put necessary preparations in hand.

IMPLICATIONS FOR THE NHS

6. The delivery of clinical training to undergraduates is changing as *Tomorrow's Doctors* is implemented, leading to less distinction between the pre-clinical and clinical period of study. Traditionally, students undertake clinical placements in years 3-5 of the 5 year course but these are now being spread over the whole undergraduate period.

The NHS's capacity to provide clinical placements

7. Clinical placements in the NHS are currently expanding away from the traditional use of facilities close to or linked to undergraduate medical schools. Increasingly, local hospitals and general practice placements are being utilised to deliver clinical training. Moving in this direction is assisting in the implementation of the current increase in intake to 4,970 without over-stretching the capacity of teaching hospitals. Additional developments in this field would assist the NHS in the delivery of our proposed increase.

8. The development of graduate entry courses could offer an efficient use of existing educational and healthcare capacity to produce more medical graduates and increase flexibility to respond to changing demand.

Funding implications

9. The costs to the NHS of supporting the clinical teaching of medical and dental undergraduates in England is currently funded through the Service Increment for Teaching (SIFT). The implications for SIFT funding in England (and for the equivalent arrangements in the other UK Health Departments) of additional students and the need to broaden the base of NHS clinical placements need to be considered; but it is not in the remit of this Committee to be prescriptive about methods of implementation.

COSTS OF EXPANDING MEDICAL SCHOOL INTAKE

10. Increasing medical student intake may require an expansion of existing medical schools and some new facilities. Expansion should be secured as flexibly and cost-effectively as possible; and this must influence choices over how to increase the number of places available.

11. An increase of 1,000 might involve the establishment of teaching facilities in new locations. Our broad-brush estimate for an increase of this magnitude (based on current unit costs and evidence provided to us) is that additional gross recurrent costs might be up to around £200 million pa, once the extra students were fully in place, although we are reasonably confident that it would be possible to implement the additional numbers at a considerably lower cost. This figure covers costs to the NHS as well as costs to the UK education departments; and includes the training costs of junior hospital doctors. The final cost will depend on how any increase is implemented, eg in terms of location, existing versus

new facilities, and changes to the curriculum. We would expect the Government and the other parties concerned to strive for maximum cost-effectiveness and quality. In addition, there would be some capital costs.

12. If growth in doctor numbers continues at the rate we anticipate, yet more expansion of student numbers will become necessary in due course. This suggests that it may be prudent to adopt a course which does not foreclose further expansion beyond that recommended in this Report.

13. While it is not within our remit to say how our recommendations should be implemented, we suggest that the Funding Councils, the NHS and their parent Government Departments bear these arguments in mind alongside the need for cost-effectiveness. We also suggest that cost-effectiveness should not cover the education sector alone, but should encompass all parties involved in training doctors, including the NHS.

Overseas medical students

14. Overseas students bring additional income to the universities but there are costs which must be borne by the NHS, both during their undergraduate course and during the PRHO year. These costs are not, to any great extent, offset by the benefit of service provided. Perhaps half of these doctors enter postgraduate training in the NHS and therefore comprise a small proportion of the non-UK doctors in the UK. While there are many reasons why the UK may wish to educate non-UK students, purely in economic terms relating to healthcare in this country, this is not a cost-effective use of resources.

15. In our First Report, we recommended that the proportion of overseas students in UK medical schools should be about 7.5% and this target has not changed since. However, having regard to the substantial increases in medical student intake now needed, it would be prudent not to increase the number of overseas students during the period when the medical school intake is being increased. This reflects the fact that investment in the training of a UK graduate is likely, on average, to offer a better return in terms of subsequent years of contribution to the NHS. We propose to continue to review this topic during the time that medical student numbers are being increased.

BENEFITS OF INCREASING MEDICAL SCHOOL CAPACITY

16. Although not easy to quantify in financial terms, there are a number of benefits that offset the costs of expansion:

- **Avoided costs:** avoiding upward pressure on costs arising from the need to recruit large numbers of doctors in an international market over which we exert no direct control and on future doctors' salaries, because of a more buoyant domestic supply. The financial value of these factors could be significant;
- **Improving cost-effectiveness:** the balance of cost advantage between increasing medical student numbers and relying on overseas trainees is likely to change in favour of more students due to falling working hours, an increase in the proportion of time junior doctors spend in training and changes in junior doctors' pay in real terms. While

overseas doctors may appear to be a lower cost option, they are not necessarily a cost-effective one in the longer-term;

- **Home share:** meeting perceptions about the appropriate proportion of UK-qualified doctors in the medical workforce;
- **Security of supply:** While the immediate risks to security of supply (Section 4.2) are probably not great, they could increase, particularly in the later part of our projection period. Failure to secure sufficient doctors from overseas will impact on quality, increased wages and reduced delivery of healthcare.

CONCLUSION

17. The size of any increase in medical student intake is a matter for judgement guided by analysis. There are a number of benefits from increasing the number of medical students, not all of which can be quantified in financial terms. We believe that the home (UK-qualified) share of doctors should be maintained at least at its present level. We are concerned about the risks to security of supply of doctors; and believe, given the UK's present exposure to those risks, that it would be prudent to err on the side of caution.

18. **We therefore recommend that the annual intake of medical students should be increased by about 1,000 in the most cost-effective manner.**

7: RECOMMENDATIONS

INTRODUCTION

1. The current workforce is made up of a combination of UK-qualified doctors and doctors from the EEA and overseas. About 76% of doctors are from the UK; but this proportion has fallen in recent years. Our analysis suggests that the gap between demand and home supply will become increasingly severe unless measures are taken to address the problem. As outlined in the Executive Summary (and more fully in the main text of this Report), it seems almost certain that short and medium-term measures (while themselves important) can only alleviate, but not resolve, the growing gap between demand and home supply.
2. We believe that the home share of the medical workforce should be maintained at its present level and preferably increased. A marked increase in medical student numbers seems necessary. The Government's decisions on implementation should take account of the ability of the educational sector to manage expansion, and the need to maintain quality and maximise flexibility and value for money. We consider that all the main parties will need to work together to manage the key issues influencing demand and supply.

OUR RECOMMENDATIONS

3. Given the changes facing the NHS and higher education in the next 20 or 30 years and the uncertainties inherent in looking this far ahead, our recommendations are designed to provide a flexible and cost-effective approach, which can be reappraised in the future as necessary.

Medical school intake

1. The annual intake of medical students should be increased by about 1,000 as soon as possible and in the most cost-effective manner.

Medical education

2. Clinical courses with graduate entry should be developed, while ensuring that such courses comply with EEC Medical Directive 93/16/EEC.
3. Medical schools should continue their efforts to minimise the level of wastage from courses, thereby increasing the proportion of entrants that qualify as doctors.

Overseas students

- 4 While the intake of medical students is being increased by 1,000, the number of undergraduate medical students from overseas should be held constant.

Recruitment and retention

5. The NHS and other employers should give further attention to improving recruitment and retention, for example, via improvements to training (in conjunction with the GMC, universities and the medical royal colleges), career planning and counselling, and increased use of flexible working patterns, to maximise doctors' participation in the NHS or other medical fields.
6. The NHS, in conjunction with the GMC and the medical royal colleges, should aim to attract a sufficient number of high quality overseas doctors by offering training of the same high standard as offered to home doctors.

Improved information and analysis

7. Further attention should be given to the need for better information and research, for example, in relation to levels of wastage (particularly from medical school), skill mix, productivity and flexible working, in order to assist future planning and monitoring.
8. Given that the health and healthcare environment is continually changing, further consideration should be given to the likely effects on the demand for doctors of policy changes, demography, working patterns (including skill substitution) and economic factors, with a view to continuing to refine the approach and analysis in the future.

ANNEX 1

MEMBERSHIP

CHAIRMAN

Professor Sir Colin Campbell, Vice-Chancellor of Nottingham University;

MEMBERS

Dame Fiona Caldicott, Principal, Somerville College, University of Oxford; immediate past President of the Royal College of Psychiatrists;

Mr Douglas Gentleman, Consultant in Brain Injury Rehabilitation, Royal Victoria Hospital, Dundee; Honorary Consultant Neurosurgeon, Dundee Royal Infirmary; member, General Medical Council;

Professor Sir Keith Peters, FRS, Regius Professor of Physic, Cambridge University;

Professor Dorothy Wedderburn, Senior Research Fellow, Management School, Imperial College; former Principal, Royal Holloway and Bedford New College (to October 1996);

Dr Robert Wilson, Principal Research Fellow, Labour Economist, Institute for Employment Research, Warwick University;

Dr Ilfra Goldberg, Associate Dean, Thames Postgraduate Medical and Dental Education, University of London;

Dr Leone Ridsdale, Reader in General Practice, Department of General Practice, Guy's and St Thomas's Medical and Dental School;

Dr Ian Seccombe, Audit Commission; formerly Institute for Employment Studies, University of Sussex;

Mr Gerry Marr, Human Resources Director, Scottish Office Department of Health; formerly Chief Executive, Yorkhill NHS Trust (from October 1996);

Mr Finlay Scott, Chief Executive and Registrar, General Medical Council (from October 1996);

Mr John Tuckett, Chief Executive, Tees Health Authority (from October 1996);

Dr Graham Boswell, Consultant Physician in Geriatric Medicine, Ceredigion and Mid Wales NHS Trust (from January 1997);

Dr Donal Keegan, Consultant Physician (Rheumatology), Altnagelvin Hospital, Londonderry (from January 1997);

OBSERVERS

Dr Clifford Hall, Deputy Chief Medical Officer, Department of Health & Social Services, Northern Ireland Office;

Dr David Ewing, Senior Medical Officer, Scottish Office Department of Health;

Dr Jane Ashwell, Senior Medical Officer, Welsh Office;

SECRETARIAT

Dr Robert Hangartner, Head of Medical Education, Training and Staffing Division, Department of Health (to June 1997);

Mr Jon Ashe (from May 1997), **Dr Cynthia Marvin** (to May 1997), **Dr Hugh Tolland** and **Mr Anthony O'Connell**, all from the Medical Workforce Planning Branch, Department of Health;

Mr Andrew Smyth, Department for Education and Employment;

With analytical advice and input from:

Mr Keith Derbyshire, Mr Colin Bell, Ms Becky Sandhu and their staff, Department of Health.

ANNEX 2

ORGANISATIONS WHO PROVIDED EVIDENCE

Organisation	Abbreviation
* Academy of Medical Royal Colleges	
* British Medical Association	BMA
* Medical Women's Federation	MWF
* Royal College of General Practitioners	RCGP
British Association of Medical Managers	BAMM
* NHS Confederation (formerly NHS Trust Federation and the National Association of Health Authorities and Trusts)	
* The Scottish Council for Postgraduate Medical and Dental Education	SCPMDE
* Council of Heads of Medical Schools and Deans of UK Faculties of Medicine	CHMS
* Committee of Vice Chancellors and Principals	CVCP
* Conference of Postgraduate Medical Deans of the UK	COPMeD
Committee of General Practice Education Directors	COGPED
General Medical Council	GMC
Medical Research Council	MRC
* Medical Practices Committee	MPC
* Centre of Health Economics University of York (Dr Roy Carr-Hill and Susan Jenkins-Clarke)	
* UK Medical Careers Research Group, Unit of Health-Care Epidemiology, Department of Public Health and Primary Care, University of Oxford	MCRG
Dr John Yates, Inter-Authority Comparisons & Consultancy Health Services Management Centre, Birmingham	
Association of the British Pharmaceutical Industry	ABPI
* Royal College of Nursing	RCN
Higher Education Funding Council for England	HEFCE
Higher Education Funding Council for Wales	HEFCW
Scottish Higher Education Funding Council	SHEFC
Steering Group on Undergraduate Medical and Dental Education and Research	SGUMDER
Scottish Joint Consultants Committee	SJCC
Standing Committee on Postgraduate Medical and Dental Education	SCOPME
Royal College of Physicians (London)	

Key

- * These bodies provided oral evidence early in 1997.

ANNEX 3

PREVIOUS RECOMMENDATIONS

1. Chapter 1 discusses progress in implementing our previous recommendations to increase medical student numbers. This Annex discusses our other recommendations.

RECOMMENDATIONS MADE IN OUR FIRST REPORT

2. Our Second Report reviewed progress made on the recommendations of our First Report. In addition to medical school intake, these recommendations covered:

- *the extension and implementation of initiatives on flexible working and other measures to increase retention of trained doctors and increase the effectiveness of current training.* As set out in our Second Report, significant progress has been made in this area. The implementation of the specialist training reforms provides the opportunity for reviewing the approach adopted, as discussed in Chapter 4.
- *research to quantify the medical workforce effects of skill-mix initiatives, to examine the career patterns of doctors, their reasons for leaving medicine and their future career intentions and, to study the affordability of further medical workforce increases.* The analysis for this Report has benefitted from studies in skill mix and doctors career patterns. Our Second Report described work on affordability.

PROGRESS ON RECOMMENDATIONS MADE IN OUR SECOND REPORT

Research

3. We re-affirmed our view of the importance of appropriate research and seeking out expert advice and opinion; and recommended commissioning further research on the effects of substitution, medical staff productivity, the differential development of service provision between sectors and between specialties. We therefore welcome the Department of Health's Human Resources and Effectiveness Research Initiative which is currently underway and includes a number of projects relating to skill mix (see below). These are aimed at establishing whether there is a relationship between innovative groupings of staff and individual, team and organisational effectiveness in the NHS.

4. We also recommended that modelling work on the growth of health care demand and the affordability of doctors is taken forward and invited specific comments on one aspect of our research to date, the Affordability Study. Since then, we have reviewed this approach and concluded that, while the Affordability Study was an excellent "one-off" study from which much could be learned, it did not offer a user-friendly model that could be rolled forwards. We have therefore adopted a simpler, more transparent, approach in our analytical work for this Report.

Advisory mechanisms

5. We reported to a previous Secretary of State for Health in March 1994 outlining suggestions for changes to medical workforce planning mechanisms in England. These recommendations were that:

- *the workforce planning committee structure (which advises on hospital medical staffing issues in England) be revised to reflect recent and proposed changes in the NHS.*

- *the revised structure should enable employers of doctors, professional organisations and educational bodies to influence the development of medical staffing policy and should ensure effective monitoring of the implementation of policies and plans.*

These recommendations led to the setting up of the Advisory Group on Medical and Dental Education, Training and Staffing (AGMETS) and its sub-groups to provide a single forum in England and Wales in which many matters relating to medical education, training and staffing could be discussed.

Optimising skills

6. We expressed our belief that it is essential to optimise the skills of all health care professionals, exploring alternative forms of health care delivery where necessary, and recommended that:

- *skill mix changes are promoted where they may benefit staff and patients; and that new initiatives should be carefully evaluated particularly with respect to patient outcomes and efficiency gains. Results and conclusions from such evaluations should be shared and discussed to enable the development of good practice guidance.*

Skill mix and multi-disciplinary working continue to be important and are discussed in this Report.

- *a central database on the development and evaluation of new roles, innovations and practices be established; and that information from this be made available for the advice and guidance of purchasers and providers wishing to alter local staffing arrangements to support cost-effective, high quality health care provision.*

In one of the projects in the Department of Health's Human Resources and Effectiveness Initiative, information on innovative roles is being obtained by carrying out a "mapping" exercise in five Trusts in each of the eight English NHS regions and will be stored on a database. This will be made available to the NHS and other interested parties.

ANNEX 4

RELEVANT DEVELOPMENTS AND POLICIES

1. This Annex discusses recent policy developments which are likely to affect the number or distribution of doctors needed. While we recognise that supply and demand are influenced by price (including the pay of doctors), we have chosen to set aside price considerations in reaching our recommendations.
2. The NHS underwent considerable change in the 1990s. This began with the management changes launched by *Working for Patients*. The *NHS and Community Care Act, 1990* introduced NHS Trusts, GP fundholding and the internal market. The *Health Authorities Act, 1995* abolished Regional Health Authorities in England and merged district and family health services authorities into single local bodies funding both primary and secondary care. It enabled health authorities and fundholding general practitioners to purchase health care from NHS Trusts or privately run hospitals, agreeing the quality, quantity and cost of services to be provided. These changes coincided with the significant developments in health policy introduced by *The Health of the Nation*, the Community Care Reforms, The Patient's Charter, the Clinical Effectiveness Initiative and increasing emphasis on primary care. Moreover, significant changes in the pattern of care have taken place. We are well aware that there is likely to be continuing change in the future, recognising that the Government's current policy initiatives relating to the NHS and the nation's health will almost certainly have a major impact on the medical workforce.
3. The arrangements and legislative provisions referred to in this Report usually apply to England; but there are different but corresponding arrangements in other parts of the UK. Some areas such as GMC provisions and policies such as the *New Deal* and *Hospital Doctors: Training for the Future* apply throughout the UK, while other policies apply only to England or to England and Wales. These differences are identified where they are of significance to our work.

PRODUCTIVITY

4. An obvious response to increasing demand for healthcare could be to increase doctors' productivity. Chapter 3 discusses a number of issues which might affect the productivity of doctors; and concludes that future improvements in medical efficiency need to be set against pressures to reduce working hours, undertake clinical and medical audit and continuing medical education, contribute to management and continue teaching and research activity.
5. The historical record shows that from 1975/6 to 1995/6 the HCHS achieved a cumulative efficiency gain of 30%; and the NHS should continue to seek improvements in overall operating efficiency. While labour productivity (measured against health care activity) increased by 47%, hospital doctor "productivity" remained constant over this period. The constancy of the link between the amount of health care provided and hospital doctor numbers (despite substantial changes in the way services are provided), suggests that the net effect of a number of factors affecting the "productivity" of hospital doctors have approximately cancelled each other out over the years. Our central scenario assumes that this will continue to be the case.
6. As was stressed in evidence to us, two other factors suggest caution:
 - health care activity gives a crude measure of doctor productivity, which understates real productivity growth because it takes no account of changing case mix or improving quality and does not measure other doctor outputs such as education and research;

- the key output of doctors is not health care activity but health outcomes and benefits (eg reduced mortality and improved quality of life). While outcome productivity has almost certainly increased in the past and will continue to do so in the future, this does not reduce the demand for doctors.

THE EUROPEAN WORKING TIME DIRECTIVE

7. The European Working Time Directive sets out provisions for minimum daily and weekly rest periods and paid annual holidays, a limit on the working week to 48 hours and restrictions on night work. There are a number of excluded sectors which currently include doctors in training, although this may change in the future.

8. While we have not assessed the effect of this expanded Directive on the demand for doctors in detail, it is worth observing that:

- restrictions on the hours of those career grade doctors to whom the Directive applies, would increase demand if the full range of services and other duties is to be met;
- the effect on the UK would be to risk extending the time that doctors spend in training. They need a great deal of training and experience before they become fully-qualified. If their hours were limited further, training programmes might have to be longer. This could slow down the supply of doctors, to the jeopardy of patient care, and would be of great concern to the medical royal colleges which are responsible for training standards (some already think the New Deal itself has narrowed training opportunities);
- The UK's limit on actual hours of work is an average of 56 a week. To come down to 48 hours is not simply a question of losing 8 hours. The standard working week is 40 hours; so the effect of moving from 56 to 48 would be to halve the current 16 hours of availability out-of-hours. This would require a significant increase in the number of doctors to bridge the resulting gap, assuming working practices are unchanged.

WORKFORCE PLANNING ARRANGEMENTS

9. Since our last Report, new medical workforce planning arrangements have been introduced in England. In the past, medical and non-medical workforce planning arrangements were almost entirely separate, with the former mainly centralised. However, the approach now being taken is increasingly integrated, with national, regional and local workforce strategies covering all the professional groups in the NHS (ie GPs, hospital and community specialists, nurses, etc). It gives a greater role than before to the NHS at a local level, for both hospitals and Health Authorities, reflecting both current and future responsibilities. This move to integrated workforce planning is an emerging process. It has not impacted to a great extent on our current set of recommendations but, as a standing committee, we will monitor these developments and their impact on the medical workforce.

IMPROVING RETENTION

10. There are many factors (other than pay) influencing recruitment and morale among healthcare professionals, including good management, a supportive working environment, personal development, flexible and family-friendly working practices, suitable working hours, less stress, protection from violence and discrimination, and employment security. As educating professional staff is expensive, retaining staff and attracting back already-qualified staff is likely to be a more cost-effective

alternative, if it can be achieved.

Overall strategy and national action

11. The Government is committed to tackling the concerns of NHS staff and bringing back a more co-operative culture by listening to staff and taking an evolutionary approach to change. If we are to get the best from NHS staff, they need to feel respected, valued and involved. The new approach is based on fairness, flexibility, and efficiency. In September 1997, consultation exercises on the NHS Human Resources (HR) strategy were launched in England and in Scotland. This is intended to raise the profile of the NHS as a good employer which values its staff.

12. A key aim of this strategy is to provide sufficient, skilled and motivated staff, who are able to adapt to the changing nature of service delivery. Achieving this, requires a coherent recruitment and retention strategy across professional boundaries, across health and social care boundaries, and across primary and secondary care boundaries, and an action programme designed to enhance the quality of the working life of NHS staff. The latter includes a number of components: occupational health; avoidance of racial discrimination against NHS staff; freedom of speech; family-friendly employment policies; primary care workforce developments; and good working conditions for junior doctors.

13. **Local action:** We need a balance between an overall strategy and local autonomy and flexibility. Employers need to continue to develop policies which link all aspects of human resource management, to ensure that staff working in the health care sector feel valued, and are given opportunities to develop and to contribute fully to the work of the NHS. Employers who have positive and imaginative employment policies are more successful at recruiting and retaining the staff they need. Managers and staff should work together in partnership to enhance the working lives of the individuals concerned.

14. **Actions in England:** The Department of Health helped to fund the Audit Commission report *Finders Keepers* (February 1997), which offers practical advice on improving retention in Trusts and has been widely distributed to local NHS employers. Good recruitment and retention practice in Trusts is being identified for sharing with the service. Annual planning guidance issued to the NHS, stresses the need for employers to improve retention for all staff.

Specific groups within the medical workforce

15. **HCHS doctors:** The improvements in postgraduate medical training stemming from the Calman training reforms should help to improve retention, as well as leading to enhanced quality. Flexible training arrangements are available for doctors in the Specialist Registrar (SpR) and SHO grades. These, combined with the prospect of seamless progression through training and (for some doctors) completing training more quickly, should help reduce wastage. For doctors at consultant level or in other career grades, Trusts should be well aware of the need to offer family-friendly employment arrangements and to help in ensuring that consultants in their 40s and beyond remain committed to the NHS, via appropriate career plans, modified responsibilities, etc.

16. **General medical services:** The primary care workforce is changing and employment arrangements have not always kept pace with the changing needs and aspirations of GPs and other health professionals and managers who work in primary care. The traditional structure of general practice based on partnerships, personal investment and long term commitments does not always meet the different needs or aspirations of existing, or possible future, GPs. Career breaks, part time working and changes in career or location are becoming increasingly common features and, alongside problems of GP recruitment in some areas, are challenging traditional models.

17. The NHS (Primary Care) Act, 1997 will provide more flexible employment opportunities in

primary care, tailoring arrangements better to suit the needs of primary care professionals as well as patients. It extends the range of locations and types of practice in which PRHO placements can be arranged and introduces the new personal medical services (PMS), a new way of delivering general medical services (eg a Trust might wish to provide such services and employ doctors to do so). It is not yet clear how far these changes will provide an incentive to young doctors to enter a career in general practice or to remain in it.

18. *Primary Care: Delivering the Future* set out proposals for change in primary care which would result in greater flexibilities in GP employment. Initiatives to provide more flexible opportunities to meet the changing needs and aspirations of the primary care workforce include:

- **Salaried Doctors scheme:** this proposed scheme within GMS would aim to attract returners to the profession and newly trained GPs who are reluctant to enter the GMS as principals.
- **Doctors Retainer Scheme** (which is not confined to general practice) was introduced in 1972 for those doctors whose commitments would otherwise prevent them from practising. It offers the opportunity to carry out a small amount of clinical work and to attend some postgraduate medical education sessions.

PART TIME AND FLEXIBLE WORKING

19. Flexible working includes less than full-time posts, job sharing, flexi-time, shift work and other patterns of work, which may help those with family or other commitments outside their working environment and is intended to improve retention. This is increasingly important with the rise in the proportion of women medical graduates to around 50%. MCRG's survey of 1983 graduates a decade into their careers, found that 3% of men and 45% of women respondents worked part-time. Before the age of 50, men work more hours than women, but hours become roughly equal at this age.

20. Opportunities for flexible training and working must continue to increase if we are to retain the doctors we train and encourage trained doctors to return to work after career breaks. This will mean overcoming the barriers to acceptance of flexible training. More generally, Trusts as employers will need to offer part-time and other flexible career grade places if they are to maintain adequate medical staffing levels.

21. In primary care, part-time working has increased and there is greater willingness to work within multi-disciplinary teams, where increasing use is being made of practice nurses and there is clear evidence of skill substitution. A survey by Baker *et al* of vocationally trained doctors found that women were less likely than men to have rejected general practice as a career but cited domestic circumstances more often as a reason for not pursuing a permanent post in general practice. This suggests that measures to increase the flexibility of employment opportunities should have a benefit, both in attracting back those who are considering returning after a career break and on the general retention of women doctors in general practice.

22. Those giving evidence to us expected an increase in the proportion of doctors working part-time and pointed out that this was not just due to the increasing proportion of female doctors. The general trend amongst society was for more flexible working and this was considered likely to be reflected in the medical profession. It was considered unlikely that the consultant or principal of the future would continue working long hours and the number of hours worked will reduce without legislation. It was suggested that "...the amount of clinical work in a medical lifetime will be 75% of that at the present time."

23. We can no longer assume that there will be no breaks in the working lives of doctors or that

training and working will follow the traditional "full-time" pattern. We must distinguish between projecting the wte and the number of doctors needed. With increasingly flexible working, we expect the wte/number ratio to fall, putting upward pressure on the number of doctors needed.

MEDICAL EDUCATION

24. ***Undergraduate education*** Medical schools are revising their undergraduate medical curricula as they implement the recommendations of the GMC's *Tomorrow's Doctors*, which envisages producing graduates whose fitness to practice as pre-registration house officers (PRHOs) is better assured. *Tomorrow's Doctors* recommends introducing a "core curriculum", covering the essential knowledge, skills and appropriate attitudes needed on graduation, together with "special study modules" which supplement the "core curriculum". These changes place less emphasis on rote learning and more on developing an individual's ability to learn. It is hoped that the changes will lead to reduced wastage both of students and young doctors.

25. ***The PRHO year*** The limits of responsibility and the level of supervision appropriate to the PRHO year were set out in the GMC's 1992 Recommendations on General Clinical Training. *The New Doctor* (GMC, April 1997) provides a thorough framework for general clinical training. It aims "*to ensure that the quality of training in all posts was brought up to the standards of the best appointments, to make the pre-registration year an enjoyable and worthwhile experience for all new doctors*". It is difficult to assess its implications on the supply/demand balance. Where general clinical training is already good, the document does no more than synthesise good practice; but where training is currently poor, it could have significant effect. It seems likely that the recommendations will curtail PRHO service contribution and warrant more input to PRHO training from NHS staff. However, by giving PRHOs a positive initial experience, it may make it more likely that they will stay in medicine.

Management of postgraduate education

26. Postgraduate Deans and Regional Directors of General Practice Education are responsible, in consultation with the medical royal colleges, for managing the delivery of postgraduate medical education. Postgraduate Deans play a central role in managing, and ensuring the quality of, the training of hospital and community doctors. Deans provide a co-ordinating management role for training programmes, ensure the integrity of appointments processes, administer part-time training schemes and organise special holding arrangements for trainees if there are temporary shortages of consultant vacancies. Through contracts with Trusts (and, for public health medicine, with Health Authorities), the deans are one of the key elements, with the medical royal colleges and the new Specialist Training Authority, in ensuring that the improved training proposed for the new specialist registrar grade is delivered.

27. Somewhat different management arrangements exist for Postgraduate Deans in Scotland, through the Scottish Council for Postgraduate Medical and Dental Education (SCPMDE).

Changes to postgraduate training

28. ***Hospital Doctors: Training for the Future*** (April 1993) is currently being implemented. It introduces improved and structured training programmes, leading to the award of a Certificate of Completion of Specialist Training (CCST). The CCST signifies completion of a training programme which meets the requirements of the European Medical Directive and sets a common standard for NHS consultant appointments.

29. One effect of these improvements in training will be to increase the demand for doctors via:

- **Consultant time** - the more structured system of training will require a much more formalised training input from consultants than existed in the past. In addition, consultants will be involved in induction, in the regular appraisal of trainees and formal annual assessments of trainees. Additional consultant time will be required for these activities.
- **Trainee service commitments** - SpRs will be required to spend considerably more time undertaking formal training than was the case with registrars (and to a lesser extent senior registrars). Trainees will also need to attend regular formal assessments and appraisals with their consultant supervisors.
- Senior House Officers will also spend a greater proportion of their time in receiving training.

The rate of growth in the demand for doctors could be particularly high in the next decade as the effects of a greater proportion of time being spent in training, start to reduce time available for service activity.

Continuing medical education/Continuing professional development (CME/CPD)

30. Doctors have a professional obligation to maintain their specialist knowledge and skills; and NHS employers have a responsibility to help them to do so. Because of the pace of change in medical practice, CME/CPD is extremely important, to enable doctors in career grade posts to fulfil their professional responsibilities to keep their knowledge and expertise up to date.
31. While doctors may now attain consultant status earlier, there are many who feel that they will be less experienced than were senior registrars previously on becoming consultants. This implies a potential need for more CME and may mean that such doctors can contribute less time to service provision.

ANNEX 5

THE POTENTIAL FOR SKILL MIX CHANGES IN HEALTHCARE

1. Given that two thirds of total NHS expenditure is spent on the workforce, the optimal use of health personnel is obviously of vital importance in assuring that services are produced and delivered in as efficient a way as possible. Getting the right skill mix is one of the central issues affecting future workforce structures and affects both the quality and the costs of patient care while providing an opportunity to increase the scope, challenge and interest for individuals.
2. Professions allied to medicine and, particularly, nurses have taken on many roles and responsibilities that were previously the remit of doctors. This Annex examines the potential for further skill mix changes to affect the future demand for doctors. It considers the extent to which substitution is feasible in terms of standards of care, costs, training requirements and recruitment into the various professions, and what the rate of change might be.

POTENTIAL FOR SKILL MIX CHANGES

3. A multi-professional approach to working in 'common core' aspects of health care is becoming an increasingly important issue. There is growing recognition that closer working between different workforce groups which involves sharing skills and experience will help to deliver care more flexibly, maximising the contribution of all staff and leading to better, more responsive care. Genuine multi-disciplinary team working, in which traditional roles and demarcation boundaries become blurred, is becoming a reality in a number of service areas (eg general practice, rehabilitation, care of the elderly, mental health, learning disabilities). The introduction of patient focused care is leading, in a number of places, to a fundamental re-examination of traditional roles and responsibilities. The challenge is one of defining boundaries and skill mix which maintain standards of care and maximise the volume of service.

Impact on demand for doctors

4. Changes to the skill mix are more advanced and established in primary care, where for example, in the past ten years there has been more than a six fold increase in the number of practice nurses. Broadly, there has been a far greater development of the use of multi-disciplinary teams in general practice than in hospitals though in some specialties skill mix is well advanced (eg the role of the renal nurse).
5. *General Medical Services* While there is potential for some further changes in the skill mix of the health care team, such changes seem likely to further broaden the services available in practices rather than reduce the demand for doctors. Research by York University concluded that only about another 5% of principals' total workload could be delegated but that securing even this modest saving was dependent on complex organisational arrangements.
6. *The HCHS* As Trusts develop their own workforce policies, they will increasingly review the use of all their staff, both medical and non-medical, in order to ensure that people are used as effectively as possible. A key element in the development of Trusts' employment strategies is the freedom, after consultation with professional colleagues, to structure a workforce in which skills are directly related to the job to be done and in which professional skills in particular are properly and appropriately used. This approach to job design and flexible working patterns is opening up new employment opportunities to many people. As an example, the local development of a range of skill mix and team working initiatives has had an important part to play in reducing working hours for junior doctors. This has benefitted patients in terms of improved care, nurses in their individual and

professional development, and junior doctors in improving their working and training environment.

7. In general, skill mix has extended the range of health care needs which can be met, rather than reduce growth in the demand for doctors.

COST-EFFECTIVENESS

8. Reviewing skills in healthcare is not primarily a cost-cutting exercise; and cost-effective manpower substitution is not merely a matter of employing the lowest paid health staff. It is also important to consider productivity, competence, quality of care, training costs relative to wage rates, and patient acceptance. Savings do not necessarily arise from employing more lower-skilled staff and fewer higher-skilled staff. There could be additional costs through:

- increased training costs for non-medical professions without a corresponding reduction in doctor training costs;
- slower consultation times and patients repeating visits until they are seen by a doctor;
- upward pressure on non-medical wages.

9. There is little robust evidence about the cost-effectiveness of skill mix changes. There is limited UK literature reviewing the comparative costs of different skill mixes:

- **Nurse practitioners:** Three studies found no savings; and a fourth study found savings in only one of seven GP sites. The York study (para 5) did not attempt to assess financial savings but suggested time savings. Two of these studies reported patient satisfaction with using nurse practitioners, while one found that quality of care was not affected.
- **Midwives:** two studies have looked at hospital care provided by midwives - one considered reducing doctor input and the other considered midwives working independently in low risk cases with medical backup. Little or no evidence exists on cost-effectiveness.
- **Nurse grade mix:** A major study commissioned by the Department of Health did not reach a clear conclusion about the cost-effectiveness of using different mixes of staff. Another study found costs did not increase when using qualified staff only to provide care, while a third found that costs increased when a greater portion of unqualified staff was used. Most studies conclude that the quality and outcome of care improve with using a richer mix of qualified to unqualified nurses.

10. More fundamentally, skill mix changes are not necessarily cost-effective if they require more non-medical staff to replace doctors or lead to significant additional training costs.

11. There could be non-financial benefits in changing skill mix. Non-financial reasons for substituting for doctors by other qualified staff include: to reduce doctors' hours; to overcome a shortage of doctors; to remove inappropriate tasks from doctors' workload; or to improve the skill base of nurses and staff in other professions allied to medicine. Any extra costs may be traded off against these other benefits. It is possible to envisage skill substitution making for a more challenging and rewarding job for both medical and non-medical staff and it may bring benefits to patient care.

12. Any extra costs must be traded off against these other benefits. Not surprisingly, the desire to explore substitution possibilities appears to be stronger at times of shortages. However, if it is more cost-effective to employ doctors, then substitution of doctors due to shortages need only be a short

term solution since supply can be increased in the long run. The feasibility of substitution needs also to be set in the context of growing demand and pressures across the whole healthcare workforce. There are increasing pressures on the other healthcare professionals, particularly across the nursing workforce, in physiotherapy and in occupational therapy.

RATE OF CHANGE

13. Our last Report noted that changing the skill mix in the NHS will involve issues which include redefining professional boundaries and autonomy, perceptions of de-skilling, the potential fragmentation and disintegration of specialties, erosion of junior doctors' training and experience, continuity of care, sensitivities around "chore dumping" and accusations of cost cutting. These may require lengthy discussions, compromises and attitude adjustments amongst traditional professional groups, before new working practices can be successfully introduced. We pointed to other issues requiring consideration, including consequences for other staff groups, accountability (where tasks are delegated to other health care professionals), and legislation (eg changes to our prescribing legislation). There will, of course, be time constraints as well as additional costs involved in training staff in new or additional skills.

14. There is widespread experience of difficulty in implementing substitution changes. The barriers that are relevant to the UK are:

- differences of culture, language and outlook between the professions;
- public attitudes;
- legislation under which the substitute staff cannot practise;
- the need for changes in the education and training curriculum.

15. Those who submitted evidence to us, saw the continuing development of skill mix, especially within the primary care sector, as on-going; but there was broad support for the view that further changes in skill mix would not reduce the demand for doctors, although it would increase the services available to patients. In addition to cost-effectiveness, reasons for this view included:

- the pace of change was currently constrained by the lack of non-medical staff, especially experienced nurses. Moreover, it was argued that "*the assumption that the majority of nurses want to take on medical activities in any standardised way is widely overestimated and this needs to be taken into account by service planners*";
- new medical procedures require medical evaluation before they can be devolved;
- the development of medical/non-medical teams was providing a wider range of services, not replacing duties performed by doctors;

CONCLUSION

16. While skill mix appears to be an essential mechanism to help manage changes of the scale and complexity currently underway in the NHS, the consequences of changing skill mix on the future requirement for doctors is not clear. Even so, having regard to all the evidence presented to us, we do not believe that skill mix changes will do a great deal to ameliorate the growth in the demand for doctors. It may, however, enable other health care needs to be met.

ANNEX 6

MEDICAL PRACTICE OUTSIDE THE NHS

1. The number of doctors working wholly outside the NHS is relatively small. MCRG's survey of 1983 qualifiers in 1994 showed that, of 2176 doctors who responded, doctors working outside the public sector included 22 in the pharmaceutical industry, 11 in private clinical practice, 6 in industrial medicine and four in journalism. By contrast 16.5% of the cohort were not in practice in the UK.
2. Doctors outside the NHS work in private medical services, industry (eg pharmaceutical), occupational medicine, academic medicine, research medicine, the Armed Forces, the Civil Service and other public services. Many are involved in patient care or in occupational health.

SOME SECTORS WHERE DOCTORS ARE EMPLOYED

3. **Academic Medicine:** Clinical academic doctors who have honorary contracts in the NHS are included in the statistics collected by the Health Departments. Non-clinical academic doctors are excluded from these statistics.
4. **Research Medicine:** Similarly, doctors engaged in research who have honorary contracts in the NHS are included in the Health Departments' data. Doctors in the NHS training grades may elect to do a period in full-time research, although Specialist Registrars remain under the aegis of the Postgraduate Deans and are therefore recorded in their (and, hence, the Departments') records, irrespective of where they are carrying out the research or hold an honorary contract. SHOs doing research would only be included in the data if they hold an honorary contract.
5. **The Private Sector** provides a spectrum of service, not all of it requiring resident medical cover. Consultants perform most of the traditional house officer tasks themselves when a patient is admitted. They remain available for those patients (ie are contactable and expected to attend whenever necessary or have arranged consultant colleague cover) for 24 hours a day for the duration of the patient's stay in hospital. However, increasingly private hospitals have Resident Medical Officers (RMOs), usually at SHO level, who provide first-line emergency cover and provide some routine care for all inpatients. Any significant management decisions are taken and instituted by the consultant in charge, to whom both the RMO and nursing staff have constant and independent access for advice.
6. The private sector offers a narrower range of specialist services than in the NHS; for example, the private sector (excluding nursing homes) contributes little to long-term and chronic care. The contribution it makes increases the range of options available to patients, their GPs and health service managers.
7. The majority of doctors working in the private sector have their main contracts with the NHS and private work is additional to their NHS duties. NHS doctors who want to practise privately are free to do so, provided this does not prejudice their NHS work. In addition doctors are eligible to retain income from Category 2 work - largely examinations and reports for third parties, eg insurers, coroners and Government Departments.
8. We were presented with evidence that suggested that it is now common to find consultants' job plans which allocate 2 sessions per week to the private sector, whereas a decade ago one session was seen as more appropriate. It was suggested that about 70% of private work is done during the working day, representing on average about 8 hours per week. However, this does not necessarily suggest upward pressure on the number of doctors employed by the NHS, since it may also represent a transfer of some work from the NHS to the private sector.

ANNEX 7

THE MEDICAL WORKFORCE AND OVERSEAS DOCTORS

1. Table 1 shows numbers of HCHS and GMS doctors in the UK.

Table 1: Numbers of doctors at September 30 each year in the UK

	1991	1996	Growth Rate, % pa
A. All UK-qualified doctors			
1. Hospital consultants	16,770	19,940	3.5 %
2. Unrestricted principals ¹	26,230	27,490	0.9 %
3. Junior doctors ²	21,820	23,740	1.7 %
4. Other HCHS doctors ³	5,530	4,880	-2.5 %
5. Other GMS doctors ⁴	2,330	2,180	-1.3 %
SUB TOTAL	72,670	78,230	1.5 %
B. Overseas and "other EEA" doctors			
1. Hospital consultants	2,810	3,740	5.9 %
2. Unrestricted principals	5,400	5,700	1.1 %
3. Junior doctors	8,110	10,610	5.5 %
4. Other doctors	2,640	3,790	7.5 %
5. Other GMS doctors	480	540	2.3 %
SUB TOTAL	19,450	24,390	4.6 %
C. All Doctors⁵			
1. Hospital consultants	19,580	23,680	3.9 %
2. Unrestricted principals	31,630	33,190	1.0 %
3. Junior doctors	29,930	34,360	2.8 %
4. Other HCHS doctors	8,170	8,660	1.2 %
5. Other GMS doctors	2,810	2,730	-0.6 %
TOTAL	92,120	102,610	2.2 %

Notes

1 Unrestricted principals (at 1 October) in the GMS.

2 Junior doctor refers to hospital staff training grades (higher specialist trainees, SHOs and PRHOs).

3 "Other HCHS doctors" includes Staff Grade, Associate Specialist and community health service doctors, but not Hospital Practitioners and Clinical Assistants because the majority of these are GPs.

4 "Other GMS doctors" includes general practice trainees in the practice-based part of their training together with restricted principals, assistants and associates in Scotland.

5 "All doctors" is the total number of doctors, irrespective of where they qualified.

6 All numbers rounded to nearest 10. Some of the totals may not match the sum of relevant column due to rounding.

2. It is worth noting that:

- much of the increase in the total number of doctors was accounted for by UK female graduates and overseas/other EEA graduates, with numbers of UK male graduates changing very little;
- the proportion of UK-qualified female doctors is highest in the more junior training grades and lowest in the consultant grade, as one would expect from the rising proportion of female medical graduates. This proportion now exceeds 50% in the vocational part of general practice training and has reached around 30% among GP principals and is rising;
- the majority of doctors who qualified outside the UK are overseas doctors, rather than "other-EEA" doctors. Both overseas and other-EEA doctors form a significant proportion of junior doctors. Most overseas doctors in these grades are "visiting" doctors (ie overseas graduates without right of residence) and are expected to leave the UK on completion of their training. Most overseas-qualified career grade doctors (consultants and other career grades) have done at least some of their training in the UK.

TRENDS AND FLOWS

3. Flows of doctors into and out of the country must be estimated or inferred. GMC data on registrations shows that, of some new 10,000 registrations annually, around 4,000 were from UK medical schools, 1,500 from other parts of the EU, and 4,000-5,000 from outside the EU. However, not all newly registered doctors intend to practise in the UK.

4. As many overseas doctors in training leave the UK on completion of their training, it is necessary to replace them each year simply to maintain numbers. Based on the assumption that non-UK doctors spend 3-4 years in training in the UK, it is estimated that these numbers are perhaps around 3,000 annually, but precise data are not available. In addition, Table 1 suggests that the number of overseas and other-EEA doctors in the UK is increasing at nearly 1,000 per year (split roughly equally between training and career grades); without a further increases in medical school intake, the rate of increase would rise to an average of 1,200 per year in our central scenario.

5. For the definition of self-sufficiency in our previous Reports to hold, this inward flow would need to be matched by a similar outflow of UK doctors. However, MCRG data for the 1983 cohort (Annex 8) allows us to infer a net annual outflow of some 250-300 doctors, including some "*UK qualified overseas*" doctors.

IMMIGRATION RULES

6. *The General Medical Services* Prior to 1985 overseas doctors were allowed access to the General Medical Services (GMS). The majority entered practice before the separate certification requirements (prescribed or equivalent experience), governing entry to the principal list, were introduced in 1979. These were extended to the employment of assistants and locums in 1995 because of the requirement to implement EC Directive 93/16 EEC, thus providing a single standard of entry into general practice. Since 1985, overseas doctors without right of residence, who wish to train in general practice, must acquire a form of work permit - unlike hospital trainees they do not enjoy *permit-free* training status. However, administrative arrangements preclude funding the training of overseas doctors who are required to hold such a work permit. In addition, overseas doctors who seek to work as principals are regarded in the Immigration Rules as "self employed" (as they are by the NHS) and must meet all the requirements of businessmen, including bringing at least £200,000 to put into the practice.

7. UK educational opportunities Overseas doctors who do not have a right of residence in the UK and who are to pursue postgraduate training in the hospital and community health services, are granted the immigration status *permit-free*, on the basis that they intend to leave the UK on completion of their training. In practice, some do obtain UK *settled* status with a right to remain in the country or, in certain circumstances, a *work permit* which enables them to work in a non-training grade prior to seeking *settled* status.

8. The Immigration Rules⁴ as they affect overseas doctors were altered in 1997 as part of the programme to take forward the recommendations arising from *Hospital Doctors: Training for the Future*. Basically, the revised rules ensure that the length of permit-free training time that doctors can be awarded will be closely allied to their training programme, and will provide sufficient time for a course to be pursued through to the award of a CCST, if appropriate.

DISTRIBUTION ISSUES

9. Overseas doctors are not evenly spread between the hospital specialties; and some of the latter would be particularly vulnerable to any change in the supply of overseas doctors. For example, a third of higher specialist trainees in England and Wales are from outside the UK; but this proportion is over half of doctors in some surgical specialties and in obstetrics and gynaecology (O&G). Other large specialties with above average proportions of non-UK higher specialist trainees are paediatrics and geriatric medicine. While overall reliance on non-UK doctors is markedly lower in Scotland, surgery and O&G have the highest proportions of non-UK doctors.

10. The distribution of non-UK doctors among consultants is somewhat different. In England and Wales, the heaviest reliance on non-UK doctors is in geriatric medicine, the psychiatric specialties and accident and emergency medicine. In contrast with the situation in higher specialist training, the surgical group is a little below the average.

USE OF OVERSEAS DOCTORS IN THE NHS

11. Any analysis of the medical labour market needs to take account of a number of general features. The supply of doctors from UK sources is relatively inelastic; but the mutual recognition of medical qualifications in the EEA makes the European doctor pool a relatively flexible source of supply. The supply of doctors from non-EEA (and, particularly, Commonwealth) countries has also been elastic in the past. Considerations of security of supply (see below) mean that it will be necessary to judge whether these favourable market conditions will continue indefinitely.

12. The labour market for doctors is dynamic but not homogeneous. Firstly, the supply of foreign doctors into the training grades is not an exact substitute for the supply of UK-trained ones, since their length of stay is constrained by the Immigration Rules, so that the majority of imported doctors have a relatively short stay within this country. Secondly, the time from commencement to completion of medical training is necessarily long, so that decisions taken in the training market have a delayed impact on the market for trained personnel. Moreover, the markets for doctors are linked to those for nurses (and other professional health care workers) through the effects of skill substitution.

13. Our task is to provide advice which will enable Government to adjust training volumes in the medical labour market to meet projected future needs. In practice, a somewhat different equilibrium

⁴ Statement of Changes to the Immigration Rules (HC338), 1997, The Stationery Office

has existed in the past, in which consistent use is made of international labour markets as sources of doctor supply (Chapter 4).

SELF RELIANCE

14. In considering whether the expansion in student numbers recommended in this Report is affordable and practicable, it is worth reviewing the issues surrounding self-reliance.

15. **Training overseas doctors - the mutual benefits** If there are reasonably balanced flows of doctors into and out of the country, then there are mutual benefits in our training overseas doctors for the individual doctors, for the countries they come from and for the UK. The main reasons why overseas doctors come to the UK include gaining training, developing skills, undertaking research, becoming acquainted with disease patterns and medical systems in another setting or, in some cases only, to take up a career grade position in the UK. The UK benefits from this through the contribution these doctors make, through contributing to improving health care overseas, and in the longer term, through cultural and diplomatic links which help promote UK medical and pharmaceutical interests overseas.

16. **Risks from abandoning self-reliance** The further we are away from reasonably balanced flows, the greater the risk to these mutual benefits. This can be seen by considering what could happen if the UK were to abandon the principle of self-reliance as a long term goal. Retaining a significant number of overseas doctors we have trained, as a matter of deliberate policy:

- could expose the UK to uncertainties in supply (see below) and put at risk the wider benefits the UK gains from training overseas doctors;
- might make senior overseas doctors (or even their governments) reluctant to send young doctors to this country for training because of the high risk that they may not return (anecdotally, there are already signs that this is beginning to happen due to the UK's high and increasing reliance on overseas doctors);
- would place the NHS's needs above those of other countries, abandoning the intention not to deprive overseas countries of the doctors in whom they have invested time and resources to educate.

Thus, in practice, such a policy might place Britain's longer-term and wider interests in jeopardy, while failing to meet the country's needs for a secure source of high quality doctors.

17. **Recruiting and training overseas doctors** Most initial recruitment of overseas doctors is into the training grades with little directly into the career grades. Assuming adequate reward, the doctors will be attracted by the opportunity to further their training and skills or undertake research in the setting of another health care system. However, they will only be attracted if good quality opportunities are provided which are relevant to their individual needs. The recommendations of the Working Group commissioned by the Chief Medical Officer to consider the implications of *Hospital Doctors: Training for the Future* for overseas doctors were aimed at delivering quality training opportunities, designed where practicable to meet individual needs, linked with improved arrangements for recruitment and employment. We welcome the good progress that has been made in taking them forward.

18. Further work is needed to improve training provision in the SHO grade generally and it will be important to ensure that this work addresses the needs of overseas doctors.

19. The need for flexibility Given the persisting difficulty in balancing demand and home supply and the length of medical training, self-reliance must be regarded as a long term aspiration. There is likely to be a long term need for overseas doctors. However, it is not the UK's intention to deprive overseas countries of the doctors they have invested time and resources to educate. The Immigration Rules are framed to discourage this, while facilitating *bona fide* training. Thus a balance has to be struck between short-term needs, and the goals of becoming more self-reliant and of offering training for overseas doctors, while not depriving their home countries of their services in the longer term.

SECURITY OF SUPPLY

20. Faced with an increasing reliance on overseas and other EEA doctors, security of supply is a vital issue. The UK might be able to meet the gap between demand and home supply if numbers of non-UK doctors were to increase at around their recent rate. However, there would be difficulties if non-UK doctors could not be recruited at the required increasing rate. Factors to consider include:

- recruitment of both overseas and other EEA doctors depends on the UK's ability to compete on quality of training and facilities as well as the terms and conditions offered. If the overall package is insufficiently attractive, these young overseas doctors may go elsewhere;
- uncertainty in sustaining the quality and quantity of supply from overseas, particularly in the light of the new training grade structure;
- there is currently a surplus of doctors in many EEA countries but the EEA as a whole may be moving towards balance or even deficit. This suggests that recruitment will become more difficult and that the recent rising trend in numbers, especially in the junior grades, is likely to be reversed around the turn of the century;
- if the UK is seen to be becoming less self-reliant, then a general reluctance, both within and outside the UK, to see young doctors from outside the UK coming to this country could become more marked. While this could make recruitment more difficult, the UK recruits from a wide range of countries, so it is unlikely that there would be a substantial impact in the short term.

Security of supply thus depends on a number of factors outside the UK's control. This includes the standard of training offered by other advanced countries and the regulations applied by these and other overseas countries in respect of the movement of medical labour. Despite the improved opportunities arising from the training reforms, it would not be prudent to assume that past success in attracting overseas doctors offers any assurance that the UK will continue to be able to do so.

ANNEX 8

TRENDS IN RECRUITMENT AND RETENTION

1. Understanding the medical workforce includes knowing about trends in the employment patterns of doctors (including flexible working) and, for those not working in the NHS or in medicine, the numbers involved, their reasons and the nature of their alternative employment. To gain this information, we commissioned studies into women doctors, flexible working and retirement and used results from MCRG's surveys of various cohorts of doctors qualifying from UK medical schools. The large cohorts (sample size) offer robust estimates of past and current trends.
2. Part of MCRG's work is to collect information about doctors who are not working in the NHS at various points in time. *Wastage*, as used here, is defined as doctors who cease, temporarily or permanently, to work in the NHS/university sector in the UK (eg through emigration, retirement, career-break, etc). Doctors not in practice at a given point in time may return to practice later, so wastage figures should not be regarded as invariably meaning "left the profession". Indeed, even if the percentages not working in medicine or in the NHS are similar after, for example, 5 and 10 years, these are not necessarily the same individuals.

MEDICAL STUDENTS

3. The proportion of women among medical students rose from 35% in 1976 and has been around the present 50% throughout the 1990s. Hence, the proportion of women in the medical workforce has risen over the last 20 years and is still rising.
4. Our earlier Reports discussed a range of estimates of qualification rates. As information is not directly available on the proportion of any medical school intake graduating with a registrable qualification, estimates are based on the annual intake of UK and EEA-born medical students and the number qualifying five years later. This is not a precise measure, since some students take intercalated degrees and will take longer to qualify. During the period 1986/87 to 1991/92, wastage rates (ie those not qualifying) for UK and EC born students fluctuated between 8% and 14% (with no systematic trend); the average was 10.9%. Data on drop-out rates is still not very firm and a recent study indicated a dropout rate of at least 12%, although this figure is not universally accepted. Our analytical work (Chapter 5) again assumes 10% as our central case.
5. Surveys by McManus and Richards and by the General Medical Council have found that about half of the students who drop out of medicine do so for non-academic reasons, presumably most decide that medicine is not an appropriate career for them.

CAREER DESTINATIONS - PREFERENCE FOR SECTOR AND SPECIALTY

6. MCRG have found significant differences between men and women in their choice of specialty and sector. General practice is a common career destination for both sexes but women are more likely to choose it and this difference may be widening. Numbers entering the general practice year of vocational training have fallen by 15% in the last five years. Table 1 illustrates the marked reduction in interest in entering general practice among qualifiers.
7. While we are maintaining, or slightly increasing, the number of whole time equivalent GPs, a further decline in trainee numbers could lead to problems. In view of the decline in interest in general practice as a career choice among recent graduates, there is no room for complacency.

Table 1: Percentage of five cohorts giving general practice as their first career choice

	1974	1977	1980	1983	1993
Men	30.6%	29.9%	34.0%	39.6%	17.5%
Women	41.7%	39.0%	41.3%	52.4%	34.0%
All	33.6%	32.9%	36.6%	44.7%	25.8%

Source: Medical Careers Research Group

RECRUITMENT AND RETENTION

8. Table 2 shows MCRG's estimate of numbers not practising medicine and numbers not practising in the UK five years after qualification. Numbers not practising in the UK comprise both respondents who say they are not in medicine in the UK and those non-respondents who are not registered as doctors in the UK. The figures are therefore the minimum estimates as some registered doctors may not be working in the UK.

9. The percentage of graduates not practising medicine after 5 years has remained quite low for all the cohorts, with no clear trends over time. The trend in those not practising in the UK five years after qualifying shows a fall from 17% for the 1974 cohort down to a minimum of 9% for 1983 qualifiers and a subsequent increase to 14% in 1988. However, the figures need to be interpreted with caution because of the uncertainty arising from non-responders to MCRG's surveys.

Table 2: Changing Patterns of Retention - Five Years after Qualification

Year of Qualification	Cohort Size	Not Practising Medicine		Not Practising Medicine in the UK	
		Number	Percentage	Number	Percentage
1974	2346	208	8.8%	398	17.0%
1977	3128	186	5.9%	405	12.9%
1980	3418	228	6.7%	350	10.2%
1983	3841	202	5.3%	339	8.8%
1988	3731	307	8.2%	513	13.7%

Source: Medical Careers Research Group

10. Table 3 shows MCRG's estimates of numbers not practising medicine in the UK for various surveys around 10 years after qualification. The data in Table 2 are comparable with the minimum estimates in Table 3. The latter shows that wastage was generally higher among women.

11. Many of the 16.5% of 1983 qualifiers who were not working in medicine in the UK in 1994 were either women taking a short career break, or were doctors working in medicine abroad:

- 9.4% of the graduates were not in medicine but 81% of these were women, most of whom had chosen to take a career break;
- 7.1% were working in medical practice abroad. Some would be former overseas students (expected to return home) but many UK doctors are likely to return.

Table 3: Estimated percentage of doctors not in practice in the UK

Cohort	Year of Survey		Minimum Estimate	Central Estimate	Maximum estimate
1983	1994	Men	10.3 %	15.4 %	18.5 %
		Women	14.0 %	18.2 %	20.5 %
		Total	11.7 %	16.5 %	19.3 %
1974	1987	Men	14.8 %	21.8 %	24.7 %
		Women	18.3 %	26.2 %	28.7 %
		Total	15.7 %	23.1 %	25.8 %
1977	1986	Men	11.2 %	20.1 %	22.1 %
		Women	18.8 %	25.9 %	27.1 %
		Total	13.7 %	22.0 %	23.8 %

Source: Medical Careers Research Group

RETIREMENT PATTERNS

12. In our earlier Reports, we assumed that current trends towards earlier retirement would continue at a moderate pace, with retirements one year earlier during 1993-2000 than in the late eighties and two years earlier in 2001-2020. We noted that numbers of doctors taking early retirement have been rising steadily for several years and that "*Complaints of stress, job dissatisfaction and low morale have become more vociferous in the past two years, with factors blamed including increased paper work, unrealistic patient expectations, increased business role, NHS cutbacks, lower standards of care, and management failure. There is a general dissatisfaction among GPs for similar reasons*". Table 4 suggests that the proportion of consultants retiring early is rising, though this is not necessarily the case in all specialties. This broadly supports our earlier assumptions.

13. A study of early retirement in the medical profession was carried out by Buchan and O'May for MWSAC. Among its findings were:

- Changing societal and cultural attitudes to retirement: a recent Income Data Services study noted that "early retirement is becoming the norm". The participation rate of older workers (particularly men) in various sectors of the economy had been falling for some years. In 1975 a total of 94% of men aged 55-59 were in jobs or looking for work, compared to 74% in 1994 (General Household Survey). In contrast, participation rates of women have not exhibited the same pattern of decline. Older workers (ie those aged 50+) are also more likely to work part time and to be self employed than younger workers.
- Demographic Factors: there are signs of an increase in early retirement (Table 4) in the consultant workforce and greater numbers of doctors are entering the age cohorts in which voluntary early retirement becomes a possible option;
- Pension and Employment Legislation: there is a high incidence of early retirement across a variety of employment sectors, often related to the use of early pension provision (but no data relating to doctors was reviewed);

- Organisational Factors: changes in employment policy and employment conditions affect retirement behaviour of individuals and groups of employees. These can range from changes in employment policy and employment conditions to indirect effect such as changes in job satisfaction, and perceptions of the comparative benefits of different career options.

14. There is relatively little hard data on retirement intentions among doctors. However, such intentions will not necessarily translate into reality for a range of personal and financial reasons.

Table 4: Early Retirements of Consultants

Early Retirement as a % of:	1990/91	1991/92	1992/93	1993/94	1994/95
- total consultant numbers	0.7 %	0.8 %	0.8 %	1.3 %	1.2 %
- total consultants aged 50-59	2.5 %	2.7 %	2.9 %	4.5 %	4.2 %

Source: NHS Pensions Agency

THE WORKING LIFE OF DOCTORS

15. The above discussion gives details of wastage and career choices over the earlier part of a doctor's career and then discusses trends in retirement. For our analytical work, we used Netten and Knight's estimate of the length of the economic working lives of health service professionals, as set out in Chapter 4. This suggested a current "composite working life" for doctors of between 27 and 28 years, giving an annual wastage figure of between 3.5% and 3.7%. For our analysis we have assumed three wastage rates 3.1%, 3.3% and 3.5%. These percentages are challenging and assume improved retention arising both from recent policy initiatives and from recommendations in this Report.

GLOSSARY

ACMMP	Advisory Committee for Medical Manpower Planning
CCST	Certificate of Completion of Specialist Training (CCST)
CME	Continuing Medical Education
CPD	Continuing Professional Development
CVCP	Committee of Vice Chancellors and Principals
European Medical Directives - Directive 93/16/EEC	The free movement of doctors within the EC was guaranteed in principle by the Treaty of Rome. The medical Directives, the first of which were adopted in 1975, facilitated that principle by providing for the mutual recognition throughout the EC, of primary and specialist medical qualifications awarded by member states to EC nationals. Directive 93/16/EEC, which took effect on 5 April 1993, is a consolidation of the various medical Directives which had been adopted since 1975, but had no substantive effect beyond existing EC legislation.
GMC	General Medical Council
GMS	General Medical Services
GP	General Practitioner
HCHS	Hospital and Community Health Service
MCRG	UK Medical Careers Research Group at the University of Oxford
O&G	Obstetrics and Gynaecology
OECD	Organisation for Economic Cooperation and Development
Other EEA doctor	a doctor whose primary qualification was acquired within the EEA but not within the United Kingdom.
Overseas doctor	a doctor whose primary qualification was acquired outside the EEA
Overseas national who qualified in the UK	an overseas national who graduated from a UK medical school. Such doctors may not have a right to residence in the UK. They are excluded from the "overseas" numbers in the statistical tables in this Report, being treated as "UK qualified".
PMS	personal medical services - a new way of delivering general medical services eg a Trust might wish to provide such services and employ doctors to do so.
PRHO	Pre-registration House Officer
RMO	Resident Medical Officer
SHO	Senior House Officer
SIFT	Service Increment for Teaching
SpR	Specialist Registrar
UK doctor	a UK national whose primary qualification was acquired from a UK medical school
WTE	Whole time equivalent

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